UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

COMPUTER OPERATIONS SPECIALTY

AFS 511X0

AFPT 90-511-413

VOLUME II OF III

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OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78148

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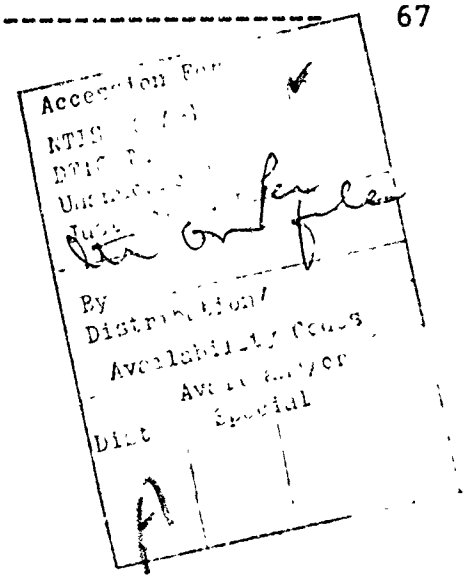

PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the Computer Operations specialty (AFSC 511X0). The project was directed by USAF Program Technical Training, Volume 2, dated October 1978. Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts from which this report was produced are available for use by operating and training officials.

The Air Force occupational analysis program has been in existence since 1956 when initial research was undertaken by AFHRL (Air Force Systems Command) to develop a methodology for gathering and analyzing occupational information. In 1967, an operational occupational analysis program was established within the Air Training Command and surveys were produced annually for 12 enlisted specialties. In 1972, the program was expanded to conduct occupational surveys covering 51 career fields annually. In late 1976, the program was again expanded to include the survey of officer utilization fields, to permit special management applications projects, and to support interservice or joint service occupational analysis.

The survey instrument used in the present project was developed by Mr. Robert Alton, Inventory Development Specialist. First Lieutenant Linda Wiekhorst and First Lieutenant Gordon Curphy analyzed the survey data and wrote the final report. This report has been reviewed and approved by Lieutenant Colonel Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Survey Branch, USAF Occupational Measurement Center, Randolph AFB, Texas 78148.

Computer programs for analyzing the occupational data were designed by Dr. Raymond E. Christal, Manpower and Personnel Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Computer Programming Branch, Technical Services Division, AFHRL.

Copies of this report are available to air staff sections, major commands, and other interested training and management personnel upon request to the USAF Occupational Measurement Center, attention to the Chief, Occupational Survey Branch (OMY), Randolph AFB, Texas 78148.

This report has been reviewed and is approved.

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SUMMARY OF RESULTS

1. Survey Coverage: Inventory booklets were administered to both Computer Operators and Computer Programmers worldwide during the fall of 1979. The 511X0 survey results are based on the responses from 2,228 AFS 511X0 incumbents (58 percent of assigned). A majority of the respondents were assigned to SAC, MAC, TAC, and ATC.

2. Job Structure: DAFSC 511X0 personnel spend a majority of their job time performing operator, production control, library, and supervisory tasks. The two major job groups and five independent job types were differentiated primarily on the varying amount of time spent performing tasks in these four functional areas. The two clusters were Management Personnel and Computer Operations Personnel, with the latter cluster making up 65 percent of the total 511X0 sample. These personnel worked primarily at the Base Data Processing Installation or MAJCOM level, and concentrate on performing typical operator and production control tasks.

The five independent job types were Automated Data Processing (ADP) Equipment Managers, ADP Contract and Budget Personnel, ADP Systems Acquisition Personnel, Tape/Disk Librarians, and Computer Systems Monitors. The Computer Systems Monitors were performing an unique job in that they served as a liason between personnel requesting computer products and the personnel fabricating the computer products.

3. Specialty Progression: Performing operator, production control, and library tasks were indicative of DAFSC 51130 personnel. Overall, 5-skill level personnel were performing many of the same tasks as 3-skill level personnel, but spent 14 percent less time performing operator tasks. Seven-skill level personnel spent 22 percent of their job time performing supervisory tasks. However, these incumbents also spent 48 percent of their job time on operator, production control, and library tasks. It is interesting to note that the most common tasks performed by 51170 personnel differ little from the tasks typically performed by 3- and 5-skill level personnel.

4. AFR 39-1 Evaluation: The 3- and 5-skill level descriptions provide a clear and concise overview of the tasks and jobs performed. The 7-skill level description also provided a good overview, but the technical tasks (which make up a majority of 7-skill level incumbents' job time) could be described in more detail.

5. TAFMS Groups: The typical trend of increasing percentage of time spent on supervisory tasks with increasing months TAFMS was noted. First enlistment incumbents (1-48 months TAFMS) were also examined, and were found to perform a technical job involving primarily operator, production control, and library tasks. Also, it was interesting to note that job satisfaction indices for first enlistment incumbents were somewhat greater than the first enlistment incumbents in other related specialties.

6. Analysis of Activity Assigned Groups: Personnel in 13 activities were examined to determine if the tasks and jobs performed differed. Overall, the jobs performed varied little among groups, although the personnel in nine of the activities were performing some unique tasks. Common computer systems

utilized and job satisfaction indicators were also examined. It is interesting to note that personnel assigned to Cargo/Passenger Processing and Satellite Tracking had relatively low job satisfaction.

7. Analysis of CONUS Versus Overseas Groups: Very few differences in tasks were noted between these two DAFSC 51150 groups. The main differences seem to occur because of the greater number of computer systems utilized by CONUS personnel. Another interesting note is the somewhat higher reenlistment intentions for overseas respondents.

8. Analysis of Organizational Levels: The personnel at 12 organizational levels (Wing, HQ USAF, MAJCOM, etc.) were examined to determine if the tasks and jobs performed varied among organizational levels. Overall, the jobs performed were relatively the same with only the personnel at NORAD, Base Data Processing Installations, and Air or Missile Division performing some unique tasks. Job satisfaction of the various groups was also examined, and personnel at NATO or MAAG reported having the lowest job satisfaction of all organizational levels.

9. Training Analysis: Tasks rated the most difficult by 511X0 personnel were troubleshooting in nature involving various pieces of common computer equipment. Tasks rated the least difficult generally involved library or routine computer operator tasks.

Tasks rated the highest in training emphasis by 511X0 personnel all involved some aspect of computer operations, such as powering up CPUs, etc. It is interesting to note that most of the tasks rated highest in training emphasis were not performed by a majority of first enlistment incumbents.

10. Implications: The dropping of the shreds in 1978 seems supported by the survey data, with the job structure remaining fairly stable since the last Occupational Survey Report. No major changes are foreseeable for this ladder, and the jobs performed by 511X0 personnel should remain the same for the next several years.

OCCUPATIONAL SURVEY REPORT
COMPUTER OPERATIONS SPECIALTY
(AFSC 511X0)

I. INTRODUCTION

This is a report of an occupational survey of the Computer Operations (AFSC 511X0) specialty, completed by the Occupational Survey Branch, USAF Occupational Measurement Center, in May 1980. The survey was initiated at the request of the Interservice Training Review Organization (ITRO) to review computer systems training provided by the four services (U.S. Army, U.S. Navy, U.S. Marine Corps, and U.S. Air Force). Both Computer Operations (511X0) and Programming (511X1) personnel in each of the four services were surveyed using a common job inventory. The results of the U.S. Air Force portion of this interservice survey are presented in a combined report covering both the 511X0 and 511X1 specialties (AFPT 90-511-413, Vol. I). This report concentrates primarily on the results relating to the Computer Operations (511X0) specialty. Detailed results of the Programming (511X1) specialty are provided in a separate report (AFPT 90-511-413, Vol. III). A more detailed report covering all services combined will be published at a later date. Additionally, at the request of the Air Force ADP Functional Manager (HQ USAF/ACD), the tasks performed by Computer Systems Monitors will be closely examined, with the results of this special analysis discussed in greater detail in a supplemental report.

Background

As outlined in the current AFR 39-1 Specialty Descriptions, Computer Operations personnel are responsible for the operation of automated data processing equipment for the Air Force. They typically perform initialization and operation procedures of computer systems equipment, maintain disk libraries, operate punch card accounting machines (PCAM), and process or control data flow. These incumbents are usually assigned to the base level and concentrate on operating base terminals or computers in support of base functions. Generally, the number of 511X0 personnel located at any one location depends on the size of the base, the types of equipment used, and the number and nature of the missions needing computer support.

Historically, the specialty carried the designation AFS 685X0, Data Processing Machine Operator, from March 1954 to January 1972. In 1972, the 68XXX field was deleted and all computer functions were transferred to a newly created 511XX career field, with AFSC 511X0 being utilized to identify Computer Operations personnel. In 1974, three shreds were authorized for use at the 3- and 5-skill levels to differentiate the different computer systems (A-Burroughs, B-Honeywell, C-IBM). This move was made primarily to facilitate technical training and assignment of personnel. However, partially as a result of a previous occupational survey report (1977), the shreds were replaced in October 1978 by Special Experience Identifiers (SEI 425-Burroughs, 426-Honeywell, 427-IBM) to denote the differences in computer systems.

Formal training for personnel desiring to enter the 511X0 specialty is available at Keesler AFB MS. This is a 25-day course in which operations personnel are orientated in the areas of: introductory data processing, computer system operation fundamentals, and mini or large-scale computer operations. Upon completion of the course, graduates are awarded a 3-skill level and are assigned to various units worldwide.

Objectives

This report will primarily examine the Computer Operations specialty (AFSC 511X0) on the basis of tasks performed by the survey repondents. However, it is important to note that the survey instrument utilized for this report was a combined 511X0/511X1 survey. The results of the AFS 511X1 and joint 511X0/511X1 analyses are presented in two separate reports (AFPT 90-511-413, Vols. I and III). It is highly recommended that users of this report also examine the other two reports in order to better assess the 511X0 specialty.

Topics discussed in this report include: (1) development and administration of the survey instrument; (2) the jobs performed by 511X0 personnel; (3) CONUS and overseas differences; (4) comparisons of the job structure to current AFR 39-1 Specialty Descriptions, the Specialty Training Standard (STS) and the Plan of Instruction (POI); and (5) job satisfaction and other related background data.

II. SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-511-413. As a starting point, the tasks from the two previous inventories (1973 and 1977) were reviewed and revised through a comprehensive research of publications and directives, and through interviews with training and classification personnel. Personal interviews were conducted with 30 subject matter specialists at Keesler AFB, Sheppard AFB, Randolph AFB, Lackland AFB, the Air Force Manpower and Personnel Center (AFMPC), Air Force Data Services Center (AFDSC), and the Air Force Systems Design Center (AFSDC) to review the tentative task list for completeness and accuracy. A joint meeting of subject matter specialists (SMS) and occupational survey personnel from all services was then conducted to merge individual task lists developed separately by each service. This combined task list was then revalidated by additional SMSs within each service. This process resulted in a final inventory of 577 tasks and a background section that included various information about the respondents, such as grade, TAFMS, duty title, organization, computer systems/languages used, and job interest.

Job Inventory Administration

During the period July through November 1979, consolidated base personnel offices in operational units worldwide administered the inventory to job incumbents holding DAFSCs 511X0, 511X1, 51199, or CEM Code 51100. These incumbents were selected from a computer generated mailing list obtained from historical AFMPC personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL).

Each individual who filled out an inventory first completed an identification and biographical information section and then checked each task performed in their current job. After checking all tasks performed, each member then rated each of these tasks on a nine-point scale showing relative time spent on the task as compared to all other tasks checked. The ratings ranged from one (very small amount of time spent) through five (about average time spent) to nine (very large amount time spent).

To determine relative time spent for each task checked by a respondent, all of an incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task is then divided by the total task ratings and multiplied by 100. This procedure provides a basis for comparing tasks in terms of both percent members performing and relative percent time spent.

Data Processing and Analysis

Once job inventories are returned from the field, they are prepared so that task responses and background information can be optically scanned. Other biographical information (such as name, base, autovon extension) is keypunched onto disks and entered directly into the computer. Once both sets of data are in the computer, they are merged to form a complete case record for each respondent. Computer generated programs using Comprehensive Occupational Data Analysis Programs (CODAP) techniques were then applied to the data.

CODAP produces job descriptions for respondents based on their responses to specific inventory tasks. Computer generated job descriptions are available for DAFSC groups, TAFMS groups, and MAJCOM groups, and include such information as percent members performing each task, the average percent time spent performing each task, the percent members utilizing various pieces of equipment, and the cumulative average percent time spent by all members for each task in the inventory.

Task Factor Administration

In addition to completing the job inventory, selected senior 511X0 personnel were also asked to complete a second booklet for either training emphasis or task difficulty. The task difficulty and training emphasis rating booklets are processed separately from the job inventories. This information is used in a number of different analyses discussed in more detail within the report.

Task Difficulty. Each senior NCO completing a task difficulty booklet was asked to rate all of the tasks on a nine-point scale from extremely low to extremely high as to the relative difficulty of that task. Difficulty is defined as the length of time it requires an average member to learn to do that task. Task difficulty data was independently solicited from experienced 7- or 9-skill level personnel stationed worldwide in each specialty. The interrater reliability (as assessed through components of variance of standard group means) for the 54 DAFSC 511X0 raters who returned booklets was .97 which suggests very high agreement. Ratings were then adjusted so that tasks of average difficulty have ratings of 5.0. The resulting data is a rank ordering of tasks indicating a degree of difficulty for each task in the inventory.

Job Difficulty Index. After computing the task difficulty index for each item, it is then possible to compute a Job Difficulty Index (JDI) for the job groups identified in the survey analysis. This index provides a relative measure of which jobs, when compared to other jobs identified, are more or less difficult. An equation using the number of tasks performed and the average difficulty per unit time spent as variables are the basis for the JDI. This index ranges from one for very easy jobs to 25 for very difficult jobs. The data are adjusted so that the average job difficulty index is 13.00. Thus, the more time a group spends performing difficult tasks, and the more tasks they perform, the higher will be their job difficulty index. The JDI ratings for the 511X0 career ladder can be found in the JOB STRUCTURE and Appendix A of this report.

Training Emphasis. Individuals completing training emphasis booklets were asked to rate all of the tasks on a ten-point scale from no training required to extremely heavy training. Training emphasis is a rating of tasks indicating where emphasis should be placed on structured training for first-term personnel. Structured training is defined as training provided at resident technical schools, Field Training Detachments (FTD), Mobile Training Teams (MTT), formal OJT, or any other organized training method. Training emphasis data was independently solicited from experienced 7- or 9-skill level personnel stationed worldwide. The interrater reliability (as assessed through components of variance of standard group means) for these raters was also high (.95), indicating that there was good agreement among the raters as to which tasks required some form of structured training and which did not. Tasks rated by the 51 Computer Operations personnel had an average training emphasis rating of 1.3 and a standard deviation of 1.4. (The low average ratings are largely a function of surveying two specialties in the same instrument; this does not affect the relative ordering of tasks by emphasis recommended, which is the main objective.)

When used in conjunction with other factors, such as percent members performing, the task difficulty and training emphasis ratings can provide insight into the training requirements of specialty. This may help validate the lengthening or shortening of specific units of instruction to refine various training programs.

Survey Sample

Personnel were selected to participate in this survey so as to insure an accurate representation across all MAJCOM and paygrade groups. In this study, a stratified random sample of all incumbents with a 511X0 DAFSC was surveyed. Table 1 reflects the major command distribution of personnel assigned to the 511X0 career ladder as of December 1979. Also reflected is the distribution of incumbents in the final sample. Table 2 reflects the percentage distributions by paygrade. Table 3 reflects the distribution of the survey sample in terms of TAFMS groups. Overall, the final survey sample provides adequate representation of all segments of the specialty, with 2,228 of the 3,851 incumbents (58 percent) assigned to the computer operations specialty being sampled.

TABLE 1

COMMAND REPRESENTATION OF SURVEY SAMPLE

COMMAND	PERCENT ASSIGNED	PERCENT SAMPLED
SAC	20	20
MAC	15	15
TAC	12	13
AFSC	9	8
USAFE	8	9
ADCOM	7	8
ATC	5	10
AFCC	4	5
PACAF	3	4
ESC	3	3
HQ AF	3	2
AAC	1	1
AFLC	1	1
OTHER	9	1
TOTAL	100%	100%

TOTAL 511X0 ASSIGNED - 3,851
TOTAL 511X0 SAMPLED - 2,228
PERCENT OF 511X0 SAMPLED - 58%

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

PAYGRADE	PERCENT ASSIGNED	PERCENT SAMPLED
AIRMAN	24	23
E-4	34	33
E-5	24	26
E-6	13	13
E-7	5	5
E-8	*	0
E-9	0	0
TOTAL	100%	100%

* INDICATES LESS THAN ONE PERCENT

TABLE 3

TAFMS DISTRIBUTION OF SURVEY SAMPLE

	MONTHS TIME IN SERVICE			
	1-48	49-96	97+	TOTAL
NUMBER IN AFS 511X0 SAMPLE	905	571	752	2,228
PERCENT OF AFS 511X0 SAMPLE	40%	26%	34%	100%

III. RESULTS

JOB STRUCTURE ANALYSIS

A key aspect to the occupational survey program is to examine the job structure of the specialty on the basis of what people are actually doing in the field, rather than on the basis of official career ladder documents. This analysis of actual job structure is made possible by the use of the Comprehensive Occupational Data Analysis Programs (CODAP). By using CODAP, jobs are identified on the basis of similarity in tasks performed and the relative time spent performing those tasks.

The specialty structure analysis process consists of determining the functional job structure of specialty personnel in terms of job types, clusters, and independent job types. A job type is a group of individuals who perform many of the same tasks and also spend similar amounts of time performing them. When there is a substantial degree of similarity between different job types, they are grouped together and labeled as clusters. Finally, there are often cases of specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are labeled independent job types.

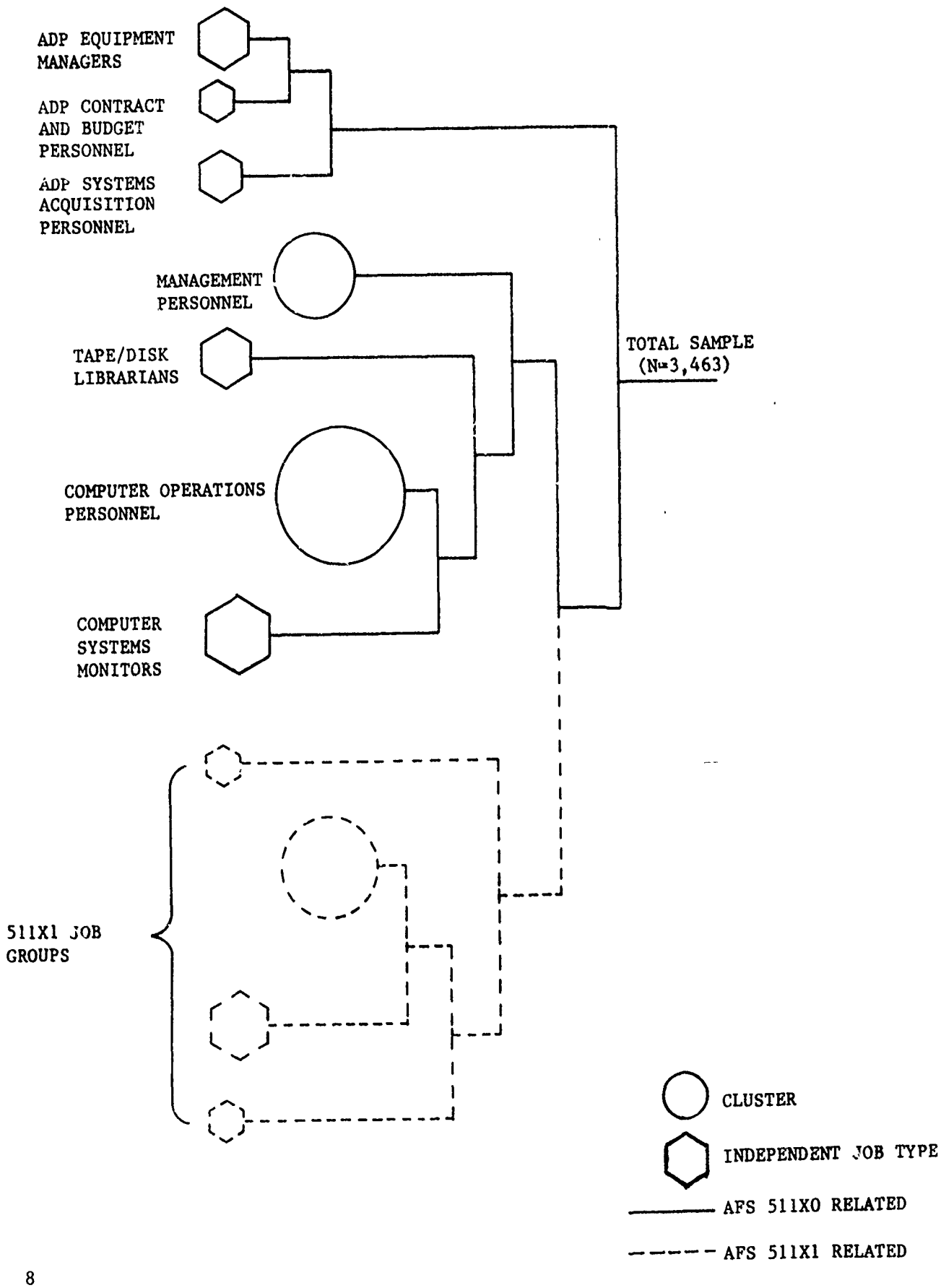
Specialty Structure Overview

The job structure for the Computer Operations specialty was determined from an analysis of 3,463 respondents in the Computer Systems (AFSCs 511X0, 511X1, 51199, and CEM Code 51100) career field. The entire career field (two specialties and senior level personnel) was analyzed together to determine the job groups unique to each specialty and also to determine if there are any jobs commonly performed by both 511X0 and 511X1 personnel. However, this report will concentrate on the jobs primarily performed by 511X0 personnel. For a more thorough discussion of the joint 511X0-511X1 job structure, see the two companion reports concerning the Computer Systems career field (AFPT 90-511-413, Volumes I and III).

Based on task similarity and the amount of time spent performing each task, the jobs performed by 511X0 respondents are listed below and illustrated in Figure 1. (GRP numbers are shown with each group as a cross reference to computer printed summaries used in the analysis of the survey data.)

FIGURE 1

COMPUTER OPERATIONS JOB STRUCTURE



I. COMPUTER OPERATIONS PERSONNEL (GRP097, N=1,449)

a. Operator Job Type Groups

(1) Intelligence Operations Computer Operators (GRP960, N=11)
(2) Wing Level Computer Operators (GRP1284, N=406)
(3) Satellite Tracking Computer Operators (GRP787, N=19)
(4) Major Command Level Computer Operators (GRP1287, N=59)
(5) Base/Wing Level Computer Operators (GRP657, N=98)
(6) Junior Computer Operators (GRP256, N=28)

b. Operator-Production Control Job Type Groups

(1) Base Level Computer Operators-Production Control Personnel (GRP1494, N=230)
(2) Operator-Production Control Personnel (GRP1450, N=11)
(3) Scheduling Operator-Production Control Personnel (GRP1212, N=12)
(4) MAJCOM Operator-Production Control Personnel (GRP1331, N=84)
(5) Satellite Tracking Operator-Production Control Personnel (GRP1192, N=25)
(6) Cargo/Passenger Processing Operator-Production Control Personnel (GRP342, N=46)
(7) Center Level Operator-Production Control Personnel (GRP458, N=14)
(8) Medical Operator-Production Control Personnel (GRP276, N=15)

c. Operator-Supervisor Job Type Groups

(1) Computer Operations/Technical Training Supervisors (GRP1641, N=42)
(2) Computer Operator Cargo/Passenger Processing Supervisors (GRP583, N=15)
(3) Separate Operating Agency Computer Operations Supervisors (GRP323, N=38)
(4) Computer Operations Technical Supervisors (GRP1112, N=38)
(5) Computer Operations Intelligence Functions Supervisors (GRP693, N=14)

d. Input/Output Controllers (GRP233, N=26)

e. Secured Operations Personnel (GRP1189, N=12)

II. MANAGEMENT PERSONNEL (GRP069, N=375)

a. Production Control Supervisors (GRP423, N=31)

b. NCOICs of Computer Operations (GRP429, N=163)

c. NCOICs of Data Automation (GRP271, N=98)

d. Evaluation and Assistance Team Personnel (GRP279, N=11)

III. AUTOMATED DATA PROCESSING (ADP) EQUIPMENT MANAGERS (GRP076, N=97)

IV. ADP CONTRACT AND BUDGET PERSONNEL (GRP116, N=17)

V. TAPE/DISK LIBRARIANS (GRP083, N=94)

VI. ADP SYSTEMS ACQUISITION PERSONNEL (GRP216, N=12)

VII. COMPUTER SYSTEMS MONITORS (GRP101, N=335)

The respondents comprising these job types and clusters account for approximately 93 percent of the total 511X0 survey population. An additional two percent of the 511X0 sample fall into predominately 511X1 job groups, while the remaining five percent of the 511X0 sample consists of unique jobs which do not group with any of the job types or clusters described above. Some of the titles held by the remaining five percent are: ADP Equipment Manager, Computer Operator Instructor, Central Computer Superintendent, Resources Management Specialist, and Computer Operator. These personnel do not group with any cluster or job type because of either the unique job they perform or the manner in which they perceive their job.

Cluster and Independent Job Type Descriptions

Brief descriptions of each 511X0 cluster and independent job type are presented below. Tables 4 through 8 present additional background information for each group. Appendix A displays various duty, background, and job satisfaction information about the job types identified in each of the clusters found in the Computer Operations specialty, in addition to a brief job description for each of the job types identified. Appendix B lists common tasks performed by all of the clusters and independent job types identified in this section.

I. COMPUTER OPERATIONS PERSONNEL CLUSTER. This cluster of 1,449 respondents is the largest group identified and makes up 65 percent of the total 511X0 sample. These incumbents grouped together due to the large amount of time (64 percent) spent performing common computer operations tasks, such as:

change or align paper in printers
correct stoppages in printers
notify supervisors or management of machine failure, downtime, or processing problems
correct stoppages on card readers
power up or power down peripheral equipment
replace print ribbons in data processing equipment
perform restart procedures on computer system
correct stoppages on magnetic tape drives
mount or dismount magnetic or paper tapes

This is a relatively young group of respondents, with 47 percent in their first enlistment and 76 percent holding the 3- and 5-skill levels. In addition, these incumbents were assigned to virtually all 12 organizational levels; however, they tend to concentrate at the Base Data Processing Installation

and MAJCOM levels. The computer systems utilized by these respondents have a similar distribution as the organization levels assigned, in that virtually all of the common computer systems are utilized to some degree.

This cluster contains 21 job types which can be grouped into five functional areas, which are operations, operations-production control, operations-supervision, security operations, and input/output functions. A more detailed analysis about each of the five functional areas and the 21 job types can be found in Appendix A at the end of this report.

II. MANAGEMENT PERSONNEL CLUSTER. This fairly large group of 375 NCOs are the supervisors or managers of the career field. These respondents perform less of a technical job and are responsible for supervising or evaluating the various activities associated with computer systems. These incumbents spend 36 percent of their job time on supervisory tasks, which include:

counsel personnel
inspect personnel
schedule leave
make work assignments
direct or implement OJT programs
conduct or participate in staff meetings
inspect ADP facilities
review Standard Operating Procedures (SOPs)

The vast majority (83 percent) of these incumbents hold the 7-skill level or better, and in addition perform the greatest average number of tasks (120) and perform the most difficult job (Job Difficulty Index of 17.6). Two other noteworthy aspects of this group's incumbents are their higher than average job satisfaction indices and their utilization of computer systems. Management Personnel are one of the few major job groups who reported having incumbents utilize all of the computer systems listed Table 7. Finally, there are four job types associated with this cluster, which include Production Control Supervisors, NCOICs of Computer Operations, NCOICs of Data Automation, and Evaluation and Assistance Team Personnel. These job types are discussed in detail in Appendix A at the end of this report.

III. ADP EQUIPMENT MANAGERS. Eighty-nine percent of the 97 incumbents in this independent job type hold the 5- or 7-skill level. Located primarily at Base Data Processing Installations, these incumbents specialize in tracking the maintenance and use of automated data processing (ADP) equipment. Tasks performed by these respondents include:

review ADP equipment maintenance records
prepare ADP management reports
review ADP equipment daily utilization logs
prepare machine utilization reports
evaluate equipment utilization

These respondents utilize a variety of computer systems, with the Burroughs B3500 being the most predominant. Job satisfaction is good, with 74 percent of these incumbents perceiving their job as interesting and 72 percent planning to reenlist.

IV. ADP CONTRACT AND BUDGET PERSONNEL. Located primarily at the MAJCOM level, these 17 incumbents coordinate the procurement of equipment utilized in the computer systems area. Having very little interaction with the computer itself, these personnel concentrate on performing several highly specialized tasks dealing with the supply and contracting of ADP equipment. The types of tasks indicative of these incumbents include:

compute ADP lease charges
prepare vendor invoice certificates
verify correctness of billings
review procurement documents
confirm contract terms
determine modifications to contracts
research status of purchase orders
prepare ADP management reports

It is interesting to note that while these incumbents make up one of the most experienced job groups (88 percent hold the 7- or 9-skill level and average 204 months TAFMS), they perform one of the less difficult jobs (Job Difficulty Index of 9.7) and have substantially lower job satisfaction (see Table 6).

V. TAPE/DISK LIBRARIANS. The 94 incumbents comprising this independent job type are distinguished by the large amount of time spent (44 percent) performing library functions. These incumbents are highly involved with the handling of magnetic media, and typical tasks include:

file magnetic media
inventory magnetic media
clean or inspect magnetic media
check in or check out magnetic media
degauss magnetic media
place scratch tapes in computer room
establish or update magnetic media history files

These incumbents are fairly inexperienced, with 81 percent holding the 3- or 5-skill level and 47 percent still in their first enlistement. The Job Difficulty Index associated with these incumbents is the lowest reported (8.8), meaning these personnel perform a relatively easier job than any other group. This fact is reflected in the job satisfaction data associated with these respondents, which are among the lowest reported. Job interest is especially low, with only 49 percent of these incumbents finding their job interesting.

VI. ADP SYSTEMS ACQUISITION PERSONNEL. These 12 incumbents are primarily involved with the planning and implementation of computer systems. Respondents are somewhat unique in that they spend a fairly large percentage of their time (36 percent) performing analysis tasks. Common tasks performed include:

prepare, coordinate, and review data automation requirements (DARs)
prepare, coordinate, and review data project plans (DPPs)
prepare, coordinate, and review data project directives (DPDs)
review recommendations for needed data systems equipment
prepare recommendations for size and capacity of proposed ADP equipment

It is interesting to note that while these incumbents average 191 months TAFMS and indicate spending 41 percent of their time in supervisory functions, they do not supervise anyone. This trend indicates an experienced technician level group rather than a purely supervisory group.

Overlap with AFS 511X1 tasks is fairly large; however, this mix seems realistic since both operator and programming inputs are needed when implementing computer systems. Broken down by AFSC, 42 percent hold a 511X0 DAFSC, 25 percent are 51199 or CEM Code level personnel, and the remaining 33 percent hold a 511X1 DAFSC.

VII. COMPUTER SYSTEMS MONITORS. Eighty-two percent of the 335 respondents who make up this independent job type hold DAFSC 511X0, and perform a liaison role between the personnel requesting computer products and the computer operators. These personnel are primarily stationed at Base Data Processing Installations, and serve a production control function by insuring that computer requests are processed correctly and that output products are sufficient and accurate. Most of these respondents' time is spent performing such tasks as:

respond to inquiries from customers
resolve production problems with customers
notify customers of production problems
notify customers of job completion
determine cause of faulty output products
report computer input data content errors to customers
coordinate with OPRs

In addition, it is important to note that these respondents utilize virtually all types of the most common computer systems, with the Burroughs B3500 computer system being the most utilized.

Job Structure Summary

The Computer Operators specialty is divided into five areas, which include operator functions, production control functions, library functions, supply functions, and supervisory functions. Operator tasks seem to be the most common, with almost all 511X0 incumbents performing these tasks to some degree.

As expected, the job structure appears to have remained relatively stable since the last occupational survey, with only one previous job group not identified. Data Processing and Accounting Machine Operators were identified in the 1977 survey but did not group into an identifiable group in this study.

A review of background data and job satisfaction information reveals that computer systems utilized and organizational levels assigned are not good discriminators between major job groups. In other words, there does not appear to be any computer system or organizational level that is unique to only one or two major job groups. Job satisfaction data indicate that ADP

Contract and Budget Personnel and Tape/Disk Librarians are the most dissatisfied with their job. The reason why ADP Contract and Budget Personnel have low perceived utilization of training ratings is probably due to the fact that these respondents have very little "hands on" interaction with computer systems. Tape/Disk Librarians probably have low job interest due to the routine and narrow nature of their job. Managers need to be aware of these job groups with low job satisfaction and find ways to improve their jobs, thus increasing the overall morale of the specialty.

Table 4 reveals the relative percent time spent on duties, and helps to identify which functional areas, personnel in the clusters and independent job types concentrate on. For example, Management Personnel spend 36 percent of their job time performing supervisory tasks, while Tape/Disk Librarians spend 44 percent of their time on library related tasks. Table 5 reveals various background information about the major job groups identified, such as average paygrade, DAFSC distribution, and average months TAFMS. For example, ADP Equipment Managers perform an average of 65 tasks, 28 percent supervise at least one subordinate, 51 percent hold the 7-skill level, and average 119 months TAFMS. Table 6 displays job satisfaction data for major job groups, and can be used to identify those jobs having high or low job satisfaction. In this case, Tape/Disk Librarians and ADP Contract and Budget Personnel seem to have the lowest job satisfaction, with perceived job interest, utilization of talents and training and reenlistment intentions, generally being lower than for other major job groups. The most common computer systems utilized by major job groups are listed on Table 7. This table reveals that the Burroughs B3500 and Honeywell 700 Series are probably the most common types of computer systems used, with at least six percent of the members in each cluster and independent job types using these systems. Table 8 displays the organizational level in which major job group personnel are working. Management Personnel and Computer Operations Personnel are somewhat distinctive in that they both report having personnel working at all 12 organizational levels.

TABLE 4

RELATIVE PERCENT TIME SPENT PERFORMING DUTIES BY MAJOR JOB STRUCTURE GROUPS

DUTIES	COMPUTER OPERATIONS PERSONNEL (N=1,449)	COMPUTER SYSTEMS MONITORS (N=335)	TAPE/DISK LIBRARIANS (N=94)	ADP SYSTEMS ACQUISITION PERSONNEL (N=12)	MANAGEMENT PERSONNEL (N=375)	ADP EQUIPMENT MANAGERS (N=97)	ADP CONTRACT AND BUDGET PERSONNEL (N=17)
OPERATOR FUNCTIONS	64	41	19	2	13	14	3
PRODUCTION CONTROL FUNCTIONS	10	22	13	2	6	10	5
LIBRARY FUNCTIONS	4	3	44	*	*	*	*
PROGRAMMING FUNCTIONS	2	7	1	*	2	2	*
ANALYSIS FUNCTIONS	1	6	1	36	6	8	8
SECURITY FUNCTIONS	4	6	7	*	6	*	*
TRAINING FUNCTION	3	1	2	1	8	3	*
SUPERVISORY FUNCTIONS	7	8	6	41	36	32	30
ADMINISTRATIVE FUNCTIONS	*	2	1	12	9	12	15
SUPPLY OR CONTRACTING FUNCTIONS	1	1	2	2	5	15	37
GENERAL MILITARY FUNCTIONS	2	3	2	2	3	3	*

* DENOTES LESS THAN ONE PERCENT

TABLE 5

BACKGROUND INFORMATION FOR MAJOR JOB STRUCTURE GROUPS

	MANAGEMENT PERSONNEL	ADP EQUIPMENT MANAGERS	COMPUTER OPERATIONS PERSONNEL	ADP SYSTEMS ACQUISITION PERSONNEL	COMPUTER SYSTEMS MONITORS	ADP CONTRACT AND BUDGET PERSONNEL	TAPE/DISK LIBRARIANS
JOB DIFFICULTY INDEX	17.6	13.3	12.0	11.1	11.0	9.7	8.8
AVERAGE NUMBER OF TASKS PERFORMED	120	65	71	25	58	27	51
AVERAGE PAYGRADE	E-6,E-7	E-5	E-4	E-6	E-4	E-6	E-4
PERCENT SUPERVISING	83%	28%	26%	NONE	21%	18%	22%
DAFSC:							
51130	0%	0%	8%	0%	1%	0%	5%
51150	8%	38%	68%	0%	59%	12%	76%
51170	47%	51%	20%	42%	23%	41%	18%
51199	27%	8%	1%	17%	0%	47%	0%
OEM CODE 51100	9%	0%	0%	8%	1%	0%	0%
511X1	9%	3%	3%	33%	16%	0%	1%
AVERAGE MONTHS TAFMS	195	119	58	191	73	204	56
PERCENT IN FIRST ENLISTMENT	3%	22%	47%	NONE	39%	NONE	41%

TABLE 6

JOB SATISFACTION DATA FOR MAJOR JOB STRUCTURE GROUPS
(PERCENT MEMBERS RESPONDING)

	ADP SYSTEMS ACQUISITION PERSONNEL	ADP EQUIPMENT MANAGERS	MANAGEMENT PERSONNEL	COMPUTER SYSTEMS MONITORS	ADP CONTRACT AND BUDGET PERSONNEL	COMPUTER OPERATIONS PERSONNEL	TAPE/DISK LIBRARIANS
I FIND MY JOB:							
NO RESPONSE	-	2	2	2	6	3	1
DULL	8	8	13	14	18	17	20
SO-SO	17	16	12	14	12	14	30
INTERESTING	75	74	73	70	64	66	49
MY JOB UTILIZES MY TALENTS:							
NO RESPONSE	-	-	-	-	-	1	1
NOT AT ALL TO VERY LITTLE	17	22	20	26	41	28	47
FAIRLY WELL OR BETTER	83	78	80	74	59	71	52
MY JOB UTILIZES MY TRAINING:							
NO RESPONSE	-	-	1	-	-	1	1
NOT AT ALL TO VERY LITTLE	42	37	25	37	71	29	56
FAIRLY WELL OR BETTER	58	63	74	63	29	70	43
I PLAN TO REENLIST:							
NO RESPONSE	-	1	3	1	-	2	2
NO OR PROBABLY NO	25	27	37	43	53	46	46
YES OR PROBABLY YES	75	72	60	56	47	52	52

TABLE 7

COMPUTER SYSTEMS UTILIZED BY MAJOR JOB STRUCTURE GROUPS
(PERCENT MEMBERS UTILIZING)*

COMPUTER SYSTEMS	COMPUTER OPERATIONS PERSONNEL	MANAGEMENT PERSONNEL	ADP EQUIPMENT MANAGERS	ADP CONTRACT AND BUDGET PERSONNEL	TAPE/DISK LIBRARIANS	ADP SYSTEMS ACQUISITION PERSONNEL	COMPUTER SYSTEMS MONITORS
BURROUGHS B3500	41	42	74	35	32	42	69
BURROUGHS B4700	10	10	20	18	10	33	14
BURROUGHS B6700	3	1	1	18	-	-	1
DEC/PDP 11 SERIES	6	6	1	-	4	25	1
HONEYWELL H6060	10	9	11	12	11	8	9
HONEYWELL 700 SERIES	23	23	22	6	7	17	22
HONEYWELL 6000 SERIES	10	12	5	-	10	-	8
IBM 360 SERIES	10	9	5	-	8	17	4
IBM 370 SERIES	4	4	-	-	4	17	2

*COLUMNS TOTAL MORE THAN 100 PERCENT SINCE SOME INDIVIDUALS WORK WITH MORE THAN ONE SYSTEM

TABLE 8

ORGANIZATIONAL LEVEL OF MAJOR JOB STRUCTURE GROUPS
(PERCENT MEMBERS RESPONDING)

ORGANIZATIONAL LEVEL	ADP EQUIPMENT MANAGERS	COMPUTER SYSTEMS MONITORS	TAPE/DISK LIBRARIANS	COMPUTER OPERATIONS PERSONNEL	MANAGEMENT PERSONNEL	ADP CONTRACT AND BUDGET PERSONNEL	ADP SYSTEMS ACQUISITION PERSONNEL
AIR OR MISSILE DIVISION	1	2	-	2	1	-	-
BASE DATA PROCESSING INSTALLATION	(67)	(68)	(39)	(38)	(32)	-	-
DOD OR JOINT SERVICE	-	2	3	4	5	-	-
HQ USAF	1	2	6	4	3	-	8
MAJCOM	14	15	21	17	(31)	(65)	(83)
NATO OR MAAG	-	-	1	1	1	-	-
NORAD	2	1	5	5	2	-	-
NUMBERED AIR FORCE	-	-	-	1	1	-	-
OPERATING LOCATION OR REMOTE SITE	-	-	-	4	4	-	-
SEPARATE OPERATING AGENCIES	4	2	7	6	3	2	8
WING	5	8	11	9	11	6	-
OTHER	6	-	7	9	6	27	1

ANALYSIS OF DAFSC GROUPS

A major section of every Occupational Survey Report includes an analysis of DAFSC skill level groups. This analysis identifies differences among the 3-, 5-, and 7-skill level groups and aids in the analysis of career ladder documents, such as AFR 39-1 Specialty Descriptions and the Specialty Training Standard (STS). The DAFSC analysis of the 511X0 specialty identifies the duties and tasks performed across each of the DAFSC groups, as well as those tasks which best differentiate the various skill level groups. An analysis of the tasks and duties common to 9-skill level and CEM Code personnel are discussed in the combined 511X0/511X1 report (AFPT 90-511-413, Volume I).

Skill Level Comparisons

As in most specialties, the jobs performed by 3-skill level respondents are largely technical in nature. Three-skill level personnel spend 97 percent of their job time on technical duties, with two duties (performing operator functions and production control functions) accounting for 76 percent of the total job time (see Table 9). This is realistic with the job structure, since a large majority of 3-skill level personnel grouped within the cluster involving these functions (see Table 10). Taskwise, Table 11 reveals the tasks performed by 3-skill level respondents. It can be seen that most of these tasks are operator related, such as correcting stoppages on printers or card readers, and mounting or dismounting magnetic tapes.

Like the 3-skill level respondents, personnel possessing DAFSC 51150 perform primarily a technical job involving primarily operator and production control functions. However, Table 9 also reveals 5-skill level personnel spend somewhat less time performing operator functions and spend more time performing supervisory and production control functions. This seems compatible with the existing specialty structure, since most of these personnel are in the Computer Operations or Computer Systems Monitors clusters. Finally, although the order of the tasks is not the same, both the 3- and 5-skill level groups perform many common tasks. These tasks include changing or aligning paper in printers, correcting stoppages on card readers, loading programs or data from tapes, replacing print ribbons in data processing equipment, and notifying customer engineers (CE) or technical representatives of equipment failure (see Table 12).

As stated previously, 3- and 5-skill level personnel spend differing amounts of time on operator and production control functions, with 3-skill level personnel concentrating on operator functions and 5-skill level personnel spending more time on production control functions (see Table 9). An examination of the tasks which best differentiate the two groups follows the same trend. Production control tasks, such as notifying customers of production problems, notifying customers of job completion, or reporting computer input data content errors to customers are performed by somewhat greater percentages of 5-skill level personnel (see Table 13). However, overall it must be noted that the jobs performed by these two groups differ very little.

Seven-skill level personnel spend a majority of their job time on operator, supervisory, and production control functions. The largest differences between 3-, 5-, and 7-skill level personnel is the percent time spent on operator and supervisory functions. DAFSC 51170 personnel spend approximately 15 percent more time on supervisory functions and 20 percent less time on operator functions than the other two groups. Table 14 reveals many of the most common tasks performed by 7-skill level incumbents are the same as the tasks performed by 51130 and 51150 personnel. These common tasks include punching cards, correcting stoppages on printers, powering up or powering down peripheral equipment, and labelling magnetic tape externally. However, supervisory tasks, such as scheduling leave or liberty, counseling personnel on personal matters, or preparing individual training records seem to be more indicative of 7-skill level personnel.

Table 15 reveals the tasks which best differentiate 5- and 7-skill level personnel on the basis of percent members performing. As expected, operator tasks, such as splicing magnetic tapes or leaders, mounting or dismounting magnetic or paper tapes, or setting or resetting computer time clocks are performed by greater percentages of 5-skill level personnel. A larger percentage of 7-skill level personnel perform supervisory tasks, such as inspecting personnel for military appearance, making work assignments, and conducting or participating in staff meetings. Overall, the technical job performed by these two groups are virtually the same, only the supervisory tasks seem to differentiate the two groups.

Summary

In the analysis of skill level groups, the jobs performed by 3-, 5-, and 7-skill level personnel are very similar, and primarily involve operator and production control functions. Although the time spent on these duties and on supervisory functions may differ, the tasks performed are virtually the same for each skill level. Table 16 demonstrates this point by revealing the common tasks across all three skill levels. A large number of these common tasks involve production control and operator functions. Overall, the job performed by all three groups does not change much during the course of normal skill level progression up to the 7-skill level.

TABLE 9

RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 51130 (N=139)	DAFSC 51150 (N=1,396)	DAFSC 51170 (N=693)
OPERATOR FUNCTIONS	67	53	32
PRODUCTION CONTROL FUNCTIONS	11	15	13
LIBRARY FUNCTIONS	7	6	3
PROGRAMMING FUNCTIONS	2	3	3
ANALYSIS FUNCTIONS	1	2	4
SECURITY FUNCTIONS	3	4	5
TRAINING FUNCTIONS	*	3	6
SUPERVISORY FUNCTIONS	3	7	22
ADMINISTRATIVE FUNCTIONS	*	2	5
SUPPLY AND CONTRACTING FUNCTIONS	1	2	4
GENERAL MILITARY FUNCTIONS	3	3	3

* DENOTES LESS THAN ONE PERCENT

TABLE 10

JOB GROUP AND DAFSC DISTRIBUTION OF 511X0 RESPONDENTS
(NUMBER OF PEOPLE RESPONDING)

JOB GROUP	DAFSC 51130	DAFSC 51150	DAFSC 51170
TAPE/DISK LIBRARIANS	5	71	17
ADP EQUIPMENT MANAGERS	-	37	50
ADP CONTRACT AND BUDGET PERSONNEL	-	2	7
COMPUTER OPERATIONS PERSONNEL	120	987	291
COMPUTER SYSTEMS MONITORS	5	196	78
ADP SYSTEMS ACQUISITION PERSONNEL	-	-	5
MANAGEMENT PERSONNEL	2	32	176
511X1 JOB GROUPS	1	17	15
NOT GROUPED	6	54	54
TOTAL	139	1,396	693

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY DAFSC 51130 RESPONDENTS

TASKS	PERCENT OF 3-SKILL LEVEL INCUMBENTS PERFORMING (N=139)
CHANGE OR ALIGN PAPER IN PRINTERS	90
CORRECT STOPPAGES ON PRINTERS	85
CORRECT STOPPAGES ON CARD READERS	79
CORRECT STOPPAGES ON CARD PUNCH MACHINES	77
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	77
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	77
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	76
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	76
REMOVE PRINTED DATA OUTPUT	74
LOAD PROGRAMS OR DATA FROM TAPES	74
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	72
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	72
LOAD PROGRAMS OR DATA FROM CARDS	70
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	70
LABEL MAGNETIC MEDIA EXTERNALLY	70
PUNCH CARDS	69
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	67
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	66
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	65
PERFORM SYSTEM INITIALIZATION PROCEDURES	63
ADDRESS OR CALL SYSTEM VIA CONSOLE TO REQUEST INFORMATION	63
POWER UP OR POWER DOWN CPU	62
ENTER DATA OR PROGRAMS INTO COMPUTER VIA CONSOLE	61
RESPOND TO OR CORRECT ERRORS VIA CONSOLE ACTION	60
REVIEW CONSOLE OUTPUT FOR JOB STATUS	60
INTERPRET CARDS BY MACHINE	60
REPRODUCE CARDS	59
LABEL MAGNETIC MEDIA INTERNALLY	58
INTERPRET INDICATING LIGHTS ON PERIPHERAL EQUIPMENT	58
MOUNT OR DISMOUNT CARRIAGE CONTROL TAPES	58
INITIATE BATCHED JOB PROCESSING	56

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY DAFSC 51150 RESPONDENTS

TASKS	PERCENT OF 5-SKILL LEVEL INCUMBENTS PERFORMING (N=1,396)
CHANGE OR ALIGN PAPER IN PRINTERS	76
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	75
PUNCH CARDS	75
CORRECT STOPPAGES ON PRINTERS	72
CORRECT STOPPAGES ON CARD READERS	70
REMOVE PRINTED DATA OUTPUT	69
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUPMENT	68
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	68
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	68
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	67
CORRECT STOPPAGES ON CARD PUNCH MACHINES	66
LOAD PROGRAMS OR DATA FROM CARDS	66
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	65
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	65
LABEL MAGNETIC MEDIA EXTERNALLY	65
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	64
LOAD PROGRAMS OR DATA FROM TAPES	64
REVIEW CONSOLE OUTPUT FOR JOB STATUS	62
INTERPRET CARDS BY MACHINE	62
PERFORM SYSTEM INITIALIZATION PROCEDURES	62
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	60
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	60
ADDRESS OR CALL SYSTEM VIA CONSOLE TO REQUEST INFORMATION	58
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	58
POWER UP OR POWER DOWN CPU	58
SET OR RESET COMPUTER TIME CLOCKS	57
NOTIFY PROGRAMMERS OR ANALYSTS OF PROCESSING PROBLEMS	56
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	56
REPRODUCE CARDS	56
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	55

TABLE 13

TASKS BEST DISTINGUISHING DAFSC 51130 PERSONNEL FROM DAFSC 51150 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 51130 (N=139)	DAFSC 51150 (N=1,396)	DIFFERENCE
NOTIFY CUSTOMERS OF JOB COMPLETION	25	48	-23
NOTIFY CUSTOMERS OF PRODUCTION PROBLEMS	28	49	-21
REPORT COMPUTER INPUT DATA CONTENT ERRORS TO CUSTOMERS	20	35	-15
LABEL PUNCHED CARD DECKS OR FILES	25	37	-12
PLACE SCRATCH TAPES IN COMPUTER ROOM	28	32	-4
POWER UP OR POWER DOWN PUNCH CARD ACCOUNTING MACHINE (PCAM) OR ELECTRONIC ACCOUNTING MACHINE (EAM) EQUIPMENT	28	32	-4

63 TASKS PERFORMED BY 30 PERCENT OR MORE OF DAFSC 51130 PERSONNEL
74 TASKS PERFORMED BY 30 PERCENT OR MORE OF DAFSC 51150 PERSONNEL

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY DAFSC 51170 RESPONDENTS

TASKS	PERCENT OF 7-SKILL LEVEL MEMBERS PERFORMING (N=693)
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	67
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	64
RESPOND TO INQUIRIES FROM CUSTOMERS	63
INSPECT PERSONNEL FOR MILITARY APPEARANCE	63
PUNCH CARDS	62
NOTIFY PROGRAMMERS OR ANALYSTS OF PROCESSING PROBLEMS	58
DETERMINE CAUSE OF FAULTY OUTPUT PRODUCTS	57
CHANGE OR ALIGN PAPER IN PRINTERS	56
COUNSEL PERSONNEL ON PERSONAL OR MILITARY MATTERS	55
CORRECT STOPPAGES ON PRINTERS	55
CORRECT STOPPAGES ON CARD READERS	52
NOTIFY CUSTOMERS OF PRODUCTION PROBLEMS	52
INITIATE BATCHED JOB PROCESSING	51
REMOVE PRINTED DATA OUTPUT	51
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	50
SPONSOR INCOMING PERSONNEL	50
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	50
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	49
RESOLVE PRODUCTION PROBLEMS WITH CUSTOMERS	48
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	47
LABEL MAGNETIC TAPE EXTERNALLY	47
SCHEDULE LEAVE OR LIBERTY	47
PREPARE OR UPDATE INDIVIDUAL TRAINING RECORDS	46
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	45
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	45
PREPARE OR UPDATE INDIVIDUAL TRAINING RECORDS	45
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	45
ISOLATE CAUSES OF MACHINE STOPS OR MALFUNCTIONS	45
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	45
REVIEW SHIFT REPORTS	45
POWER UP OR POWER DOWN CPU	45
SUPERVISE PERSONNEL OPERATING ADP EQUIPMENT	45
ENTER DATA OR PROGRAMS INTO COMPUTER VIA CONSOLE	43
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	43

TABLE 15

TASKS MOST CLEARLY DISTINGUISHING DAFSC 51150 AND 51170 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 51150 (N=1,396)	DAFSC 51170 (N=693)	DIFFERENCE
SPLICE MAGNETIC TAPES OR LEADERS	42	20	+22
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	56	36	+20
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	65	47	+18
SET OR RESET COMPUTER TIME CLOCKS	57	39	+18
CORRECT STOPPAGES ON CARD PUNCH MACHINES	66	48	+18
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	68	50	+18
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	68	50	+18
* * * * * *			
INSPECT PERSONNEL FOR MILITARY APPEARANCE	20	63	-43
COUNSEL PERSONNEL ON PERSONAL OR MILITARY MATTERS	14	55	-41
MAKE WORK ASSIGNMENTS	10	49	-39
SCHEDULE LEAVE OR LIBERTY	9	47	-38
PREPARE OR UPDATE INDIVIDUAL TRAINING RECORDS	10	46	-36
PREPARE PERSONNEL WORK SCHEDULES	11	40	-29
INSPECT ADP WORK AREAS OR PERSONNEL FOR UNSAFE WORKING CONDITIONS	12	39	-27
INSPECT ADP FACILITIES FOR CLEANLINESS OR STATE OF REPAIR	14	41	-27
CONDUCT OR PARTICIPATE IN STAFF MEETINGS	7	34	-27
ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	5	31	-26

103 TASKS PERFORMED BY 30 PERCENT OF MORE DAFSC 51170 PERSONNEL

TABLE 16

TASKS COMMON TO ALL 511X0 SKILL LEVEL GROUPS
(30 PERCENT MEMBERS RESPONDING OR MORE)

TASKS	DAFSC 51130 (N=139)	DAFSC 51150 (N=1,396)	DAFSC 51170 (N=693)
CORRECT STOPPAGES ON PRINTERS	85	72	55
CORRECT STOPPAGES ON CARD READERS	79	70	52
CORRECT STOPPAGES ON PUNCH MACHINES	78	66	48
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	77	67	49
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	76	68	50
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	76	65	47
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	72	68	50
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	72	64	47
LABEL MAGNETIC MEDIA EXTERNALLY	70	65	47
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	67	60	49
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEMS	66	65	49
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVE OF EQUIPMENT FAILURE	65	68	65
PERFORM SYSTEM INITIALIZATION PROCEDURES	63	62	49
POWER UP OR POWER DOWN CPU	62	59	45
REVIEW CONSOLE OUTPUT FOR JOB STATUS	60	62	48
INTERPRET CARDS BY MACHINE	60	62	46
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	60	59	46
REPRODUCE CARDS	59	56	40
MOUNT OR DISMOUNT CARRIAGE CONTROL TAPES	58	52	39
INTERPRET INDICATING LIGHTS ON PERIPHERAL EQUIPMENT	58	53	40
LABEL MAGNETIC MEDIA INTERNALLY	58	49	36
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	55	55	45
NOTIFY PROGRAMMERS OR ANALYST OF PROCESSING PROGRAMS	54	56	58
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	54	56	36
SET OR RESET COMPUTER TIME CLOCKS	53	57	39
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	53	55	43
MAKE ENTRIES OR WORK OR RUN REQUESTS, SUCH AS INTITIALS, REMARKS, OR PANEL READING	52	48	39
MAKE ENTRIES IN ADP EQUIPMENT DAILY UTILIZATION LOGS	50	52	43
PERFORM EMERGENCY POWER OFF PROCEDURES	50	46	40
ISOLATE CAUSES OF MACHINE STOPS OR MALFUNCTIONS	47	53	45
PERFORM OPERATOR MAINTENANCE ON PUNCH CARD EQUIPMENT	44	45	31
PERFORM ADP SEVERE WEATHER, BOMB THREAT, OR NATURAL DISASTER OPERATIONAL PROCEDURES	43	42	41
CORRECT STOPPAGES OR INTERPRETERS	42	46	32
LOAD OR UNLOAD DISKS	41	45	39
PREPARE CARRIAGE CONTROL TAPES	40	46	34
INTERPRET INDICATING OR REGISTER LIGHTS ON CENTRAL PROCESSING UNITS (CPU)	40	43	34
COMPARE TAPE IDENTIFICATIONS AND TAPE FILE CONTROLS FOR AGREEMENT	37	46	36
CLEAN OR INSPECT MAGNETIC MEDIA	37	44	30
CORRECT STOPPAGES ON DISK DRIVES	36	40	33
ISOLATE PROBLEMS ON PRODUCTION RUNS	34	40	40
PLACE LOAD POINT OR END-OF-TAPE MARKERS ON MAGNETIC TAPE	34	39	30
ANALYZE CONSOLE PRINTOUTS TO IDENTIFY COMPUTER STOPPAGES	32	38	41
DISTRIBUTE OR DELIVER OUTPUT PRODUCTS	31	43	37
PERFORM OPERATOR MAINTENANCE ON TEMPERATURE OR HUMIDTY RECORDING DEVICES	31	35	30

COMPARISON OF SURVEY DATA TO AFR 39-1 SPECIALTY DESCRIPTIONS

Survey data for the 511X0 specialty were compared to the AFR 39-1 Specialty Descriptions, dated 15 September 1978. These descriptions are intended to give a broad overview of the duties and tasks required to be performed by the various skill level personnel.

Overall, the 3- and 5-skill level descriptions were found to provide a clear, concise overview of the major duties and tasks performed by these incumbents. The 7-skill level description was also found to be a good general overview; however, the description seems to characterize the 7-skill level as primarily supervision and management. In the ANALYSIS OF DAFSC GROUPS section, it was rated that 7-skill level personnel spend 45 percent of their job time performing operator and production control tasks. Most of these technical tasks are the very same tasks commonly performed by the 3- and 5-skill level personnel. In order to fully characterize the 7-skill level job, it seems necessary to increase the description of the technical responsibilities which 7-skill level personnel are performing. These additions are reflected in Appendix C.

ANALYSIS OF EXPERIENCE (AFMS) GROUPS

In order to assess the normal pattern of change in jobs as a function of experience, it is possible to analyze differences in tasks performed at various points of service in the specialty. In the Computer Operations specialty, no major deviations from the typical pattern of increasing time spent on supervisory tasks with increasing months of Total Active Federal Military Service (TAFMS) were noted. Junior airmen reported spending a greater percentage of their job time on technical duties, such as performing operator, production control, and library functions, while more senior incumbents spend a greater percentage of their time on supervisory duties (see Table 17).

Senior incumbents typically spend more time on supervisory tasks, such as scheduling leave or liberty or supervising personnel operating ADP equipment. However, technical tasks involving operator or production control functions make up a majority of the job time for those incumbents with less than 145 months TAFMS. A review of the common tasks performed by all TAFMS groups reveals that personnel with less than 48 months TAFMS are virtually doing the same tasks as personnel with 97-144 months TAFMS. Therefore, many of the senior incumbents in this specialty seem to be first-line supervisors, i.e., perform both technical and supervisory tasks.

In addition to a duty and task analysis, 511X0 respondents were also examined on various job satisfaction indices, which include perceived job interest, perceived utilization of talents and training, and reenlistment intentions. The results of these 511X0 job satisfaction indices were compared with a comparative sample of personnel from all direct support specialties surveyed in 1979 (these sample specialties included ones in the following fields: 25XXX, 39XXX, 75XXX, and 81XXX). When compared to the direct support group, perceived utilization of talents and reenlistment intentions are generally greater for the Computer Operations specialty. However, the largest differences between the two groups centered around job interest, with a greater percentage of 511X0 first enlistment personnel (1-48 months TAFMS) reporting their job as interesting (69 percent) than the comparative direct support sample.

Table 18 reveals another interesting phenomena in regard to the job interest indicators for 511X0 personnel. Unlike the comparative sample, in which job interest steadily increases with TAFMS, 511X0 job interest indices show a very slight decrease with time. A possible explanation to this trend is the fact that the overall job changes very little until 145 months TAFMS. Therefore, incumbents in the specialty may foresee their job as changing very little until the 12 year point, which could inhibit an increase in job interest among career personnel (the trend observed in most specialties).

First Enlistment Personnel

In addition to the general TAFMS analysis, first enlistment personnel were examined on the basis of duties and tasks performed, equipment utilized, and job satisfaction information. Table 17 reveals 511X0 personnel with less than 48 months TAFMS spend a majority of their job time on operator and production control functions. As expected, the most common

tasks performed by first enlistment personnel are operator and production control related, such as punching cards, removing printed data output, loading programs or data from tapes, and responding to or correcting errors via console action (see Table 19). The most common computer systems utilized are listed in Table 20, and reveals a first enlistment incumbents are more likely to utilize the Burroughs B3500 than any other computer system. It is important to note that Honeywell computer systems are also utilized fairly frequently, especially the Honeywell 700 Series. Finally, Table 21 lists the most common peripheral equipment utilized by first enlistment personnel. Eleven pieces of this type of equipment are utilized by at least 30 percent of these incumbents, and include magnetic tape units, line printers, system consoles, and decollators.

First enlistment job satisfaction responses were also closely examined on the basis of the comparison sample mentioned previously in this section. Generally, job interest and perceived utilization of talents are much higher for 511X0 first enlistment personnel than the comparative sample. Reenlistment intentions are also somewhat greater for 511X0 personnel (38 percent versus 32 percent), however the perceived utilization of training is the same across both the 511X0 and comparison sample.

Overall, 511X0 first enlistment personnel perform primarily a operator and production control job. In addition, these incumbents find their job more interesting and a greater percentage planned to reenlist than the 1979 comparative sample.

TABLE 17

RELATIVE PERCENT TIME SPENT ON DUTIES BY TAFMS GROUPS

DUTIES	TAFMS GROUPS 1-48 MONTHS (N=905)	49-96 MONTHS (N=569)	97-144 MONTHS (N=330)	145-192 MONTHS (N=197)	193-240 MONTHS (N=175)	241+ MONTHS (N=48)
OPERATOR FUNCTIONS	57	50	42	30	28	19
PRODUCTION CONTROL FUNCTIONS	15	14	15	12	12	12
LIBRARY FUNCTIONS	7	6	4	3	2	4
PROGRAMMING FUNCTIONS	3	3	3	3	3	2
ANALYSIS FUNCTIONS	2	2	3	4	5	5
SECURITY FUNCTIONS	4	5	5	5	5	6
TRAINING FUNCTIONS	2	4	5	7	5	5
SUPERVISORY FUNCTIONS	5	9	15	23	26	31
ADMINISTRATIVE FUNCTIONS	*	2	3	6	6	8
SUPPLY OR CONTRACTING FUNCTIONS	2	2	3	4	5	6
GENERAL MILITARY FUNCTIONS	3	3	2	3	3	2

* DENOTES LESS THAN ONE PERCENT

TABLE 18

JOB SATISFACTION DATA FOR TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	511X0 RESPONDENTS (N=905)	1979 COMPARATIVE SAMPLE* (N=1,201)	511X0 RESPONDENTS (N=569)	1979 COMPARATIVE SAMPLE* (N=1,654)	511X0 RESPONDENTS (N=750)	1979 COMPARATIVE SAMPLE* (N=2,089)
I FIND MY JOB:						
NO RESPONSE	2	3	2	4	2	5
DULL	16	35	15	26	18	13
SO-SO	13	20	17	17	15	12
INTERESTING	69	42	66	53	65	70
MY JOB UTILIZES MY TALENTS:						
NO RESPONSE	-	1	-	1	-	2
NOT AT ALL TO VERY LITTLE	29	50	26	38	28	20
FAIRLY WELL OR BETTER	71	49	74	61	72	78
MY JOB UTILIZES MY TRAINING:						
NO RESPONSE	1	2	1	1	-	2
NOT AT ALL TO VERY LITTLE	31	30	32	32	31	24
FAIRLY WELL OR BETTER	68	68	67	67	69	74
I PLAN TO REENLIST:						
NO RESPONSE	2	4	1	3	2	4
NO OR PROBABLY NO	60	64	40	45	25	30
YES OR PROBABLY YES	38	32	59	52	73	66

*COMPARATIVE SAMPLE TAKEN FROM ALL DIRECT SUPPORT SPECIALTIES SURVEYED IN 1979, INCLUDES AFSCs 25XXX, 39XXX, 75XXX, AND 81XXX

TABLE 19

REPRESENTATIVE TASKS PERFORMED BY FIRST-TERM 511X0 RESPONDENTS

TASKS	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
CHANGE OR ALIGN PAPER IN PRINTERS	78
PUNCH CARDS	76
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	75
CORRECT STOPPAGES ON PRINTERS	74
CORRECT STOPPAGES ON CARD READERS	72
REMOVE PRINTED DATA OUTPUT	72
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	70
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	70
CORRECT STOPPAGES ON CARD PUNCH MACHINES	69
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	69
LOAD PROGRAMS OR DATA FROM CARDS	68
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	68
LOAD PROGRAMS OR DATA FROM TAPES	67
LABEL MAGNETIC MEDIA EXTERNALLY	67
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	66
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	66
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	66
INTERPRET CARDS BY MACHINE	65
INITIATE BATCHED JOB PROCESSING	64
PERFORM SYSTEM INITIALIZATION PROCEDURES	64
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	63
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	60
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	60
POWER UP OR POWER DOWN CPU	60
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	59
ADDRESS OR CALL VIA CONSOLE TO REQUEST INFORMATION	58
SET OR RESET COMPUTER TIME CLOCKS	58
REPRODUCE CARDS	58
ENTER DATA OR PROGRAMS INTO COMPUTER VIA CONSOLE	57
NOTIFY PROGRAMMERS OR ANALYSTS OF PROCESSING PROBLEMS	57
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	56
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	55

76 TASKS PERFORMED BY 30 PERCENT OR MORE 511X1 FIRST-TERM PERSONNEL

TABLE 20

MOST COMMON COMPUTER SYSTEMS UTILIZED BY 511X0
FIRST ENLISTMENT PERSONNEL

COMPUTER SYSTEMS	PERCENT OF FIRST ENLISTMENT PERSONNEL UTILIZING (N=905)
BURROUGHS B3500	53
HONEYWELL 700 SERIES	24
BURROUGHS B4700	9
HONEYWELL 6000 SERIES	8
HONEYWELL H6060	7
IBM 360 SERIES	6
UNIVAC 1100 SERIES	5
IBM 370 SERIES	4
DEC/PDP 11 SERIES	3

TABLE 21

MOST COMMON TYPES OF PERIPHERAL EQUIPMENT UTILIZED
BY 511X0 FIRST ENLISTMENT PERSONNEL

PERIPHERAL EQUIPMENT	PERCENT OF FIRST ENLISTMENT PERSONNEL UTILIZING (N=905)
MAGNETIC TAPE UNIT	73
LINE PRINTER	63
SYSTEM CONSOLE	53
DECOLLATOR	51
MAGNETIC TAPE CLEANER	50
DISK DRIVE UNIT	47
ON-LINE CARD PUNCH	47
ON-LINE CARD READER/PUNCH	41
BURSTER	35
IBM 59 CARD PUNCH	35
CATHODE-RAY TUBE TERMINAL	30
MAGNETIC TAPE DEGAUSSER	28

ANALYSIS OF CONUS VERSUS OVERSEAS GROUPS

A comparison was made of the tasks performed and various background data for DAFSC 51150 respondents assigned within the CONUS versus those assigned to overseas locations. As expected, the jobs performed by these two groups were virtually the same; however, some minor differences were noted. A slightly greater percentage of CONUS respondents perform magnetic media type tasks, such as loading or unloading disks, splicing magnetic leaders, and placing load-point or end-of-tape markers on magnetic tapes. On the other hand, several operator and production control tasks, such as interpreting cards by machine, bursting printed output, and correcting stoppages on interpreters seem to be more indicative of overseas respondents (see Table 22).

An examination of the computer systems utilized by both CONUS and overseas groups reveal that CONUS respondents are working with a greater number of different computer systems than the overseas respondents. For example, Table 23 reveals CONUS respondents utilize 15 different computer systems while overseas respondents only utilize nine types of computer systems. However, the percent members utilizing types of peripheral equipment seems relatively the same between the two groups (see Table 24).

Background differences between CONUS and overseas respondents were also found. Overseas respondents perform slightly fewer tasks (66 versus 68) but have slightly more months TAFMS (60 versus 53) than CONUS respondents. The greatest difference concerning job perceptions seems to be reenlistment intentions. Fifty-five percent of the overseas respondents planned to reenlist while only 46 percent of the CONUS respondents indicated a positive interest.

TABLE 22

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 51150 CONUS AND OVERSEAS GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	CONUS (N=1,158)	OVERSEAS (N=237)	DIFFERENCE
LOAD OR UNLOAD DISKS	48	31	+17
SPLICE MAGNETIC TAPES OR LEADERS	44	31	+13
INSTRUCT OR TRAIN PERSONNEL TO OPERATE PERIPHERAL EQUIPMENT	31	21	+10
PLACE LOAD-POINT OR END-OF-TAPE MARKERS ON MAGNETIC TAPE	42	32	+10
PLACE SCRATCH TAPES IN COMPUTER ROOM	33	24	+9
INSTRUCT OR TRAIN PERSONNEL IN HANDLING OF MAGNETIC MEDIA	29	20	+9
STORE OR SAFEGUARD CLASSIFIED MATERIAL	34	25	+9
CORRECT STOPPAGES ON DISK DRIVES	41	32	+9
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	53	70	-17
INTERPRET CARDS BY MACHINE	59	76	-17
PARTICIPATE IN GENERAL DRILLS OR ALERTS	24	38	-14
MOUNT OR DISMOUNT CARRIAGE CONTROL TAPES	50	61	-11
REMOVE OR REPLACE PRE-WIRED CONTROL PANELS ON PCAM OR EAM EQUIPMENT	27	37	-10
CORRECT STOPPAGES ON INTERPRETERS	44	54	-10
ASSEMBLE, REARRANGE, OR EDIT INPUT OR OUTPUT DATA	33	43	-10
INTERPRET OR VERIFY CARDS VISUALLY	43	51	-8
PERFORM OPERATOR MAINTENANCE ON TEMPERATURE OR HUMIDITY RECORDING DEVICES	33	41	-8
SPONSOR INCOMING PERSONNEL	30	38	-8

TABLE 23

COMMON COMPUTER SYSTEMS UTILIZED BY DAFSC 51150 CONUS AND OVERSEAS GROUPS
(PERCENT MEMBERS UTILIZING)

COMPUTER SYSTEMS	CONUS (N=1,158)	OVERSEAS (N=237)
BURROUGHS B3500	45	67
HONEYWELL 700 SERIES	23	19
HONEYWELL 6000 SERIES	11	2
BURROUGHS B4700	10	11
HONEYWELL H6060	9	6
IBM 360 SERIES	8	4
UNIVAC 1100 SERIES	5	*
DEC/PCP 11 SERIES	4	8
IBM 370 SERIES	3	3
BURROUGHS B6700	3	*
UNIVAC 9300	2	*
VARIAN V70 SERIES	2	*
CDC 6600 SERIES	2	*
HEWLETT-PACKARD HP 2100 SERIES	2	*
PHILCO 2000	2	*
UNIVAC 90/30	*	3

* DENOTES LESS THAN ONE PERCENT

TABLE 24

COMMON PERIPHERAL EQUIPMENT UTILIZED BY
DAFSC 511X0 CONUS AND OVERSEAS GROUPS
(PERCENT MEMBERS UTILIZING)

PERIPHERAL EQUIPMENT	CONUS (N=1,158)	OVERSEAS (N=237)
MAGNETIC TAPE UNIT	71	66
LINE PRINTER	62	60
SYSTEM CONSOLE	54	44
MAGNETIC TAPE CLEANER	48	52
ON-LINE CARD PUNCH	47	39
DISK DRIVE UNIT	47	40
DECOLLATOR	44	66
ON-LINE CARD READER/PUNCH	40	35
IBM 59 CARD PUNCH	38	45
BURSTER	31	36
CATHODE-RAY TUBE TERMINAL	31	30
MAGNETIC TAPE DEGAUSSER	28	22
MICROFILM/MICROFICHE READER	18	27
MAGNETIC TAPE CERTIFIER	15	2

SUMMARY OF BACKGROUND INFORMATION

Each USAF Job Inventory contains a background information section in which the respondent reports information about themselves and their job. When summarized, these variables can provide an insight into the relationship between jobs, skill level, experience level, or other AFSCs. This information, summarized in the following paragraphs involves the characteristics of various activities and organizational levels operators may be assigned, the computers utilized, and job perceptions of these various groups.

Analysis of Activity Assigned Groups

The various jobs performed by personnel assigned to 13 different activities were examined. These 13 activities include 511X0 personnel assigned to Automated Data Processing Management, Cargo/ Passenger Processing, Combat Operations Centers, Command and Control, Data Automation, Data Service Center, Data Systems Design Center, Global Weather Center, Intellegence, Satellite Tracking, Comptroller, Research and Development, and Support Activities. Data Automation personnel make up the largest percentage of 511X0 personnel, with 54 percent of the total sample assigned to this activity.

By and large, the overall job performed by 511X0 personnel varies little between activities, and approximately 65 percent of the available job time is spent performing operator and production control tasks. Typical tasks include labelling magnetic media externally, loading programs or data from cards, notifying supervisors or management of equipment failure, or performing system initialization procedures. Although the overall jobs performed are relatively the same, Table 25 reveals that personnel in nine of the 13 activity groups identified perform tasks which are somewhat distinct relative to other activity groups. Brief descriptions of these unique activity groups are given below.

Automated Data Resources Management. These 73 incumbents are differentiated due to both the smaller percentage of these respondents performing operator tasks and the greater percentage of these incumbents performing resources tasks. For example, only 12 percent of these incumbents correct stoppages on disk drives while 36 percent verify correctness of billings for repair of ADP equipment.

Cargo/Passenger Processing. These 48 incumbents are distinct due to the somewhat larger percent members performing card tasks. Items such as sorting or collating cards by machine are more indicative of these personnel.

Combat Operations Center. Personnel assigned to this activity are unique due to certain security type tasks commonly performed. Tasks such as preparing classified material for mailing and stamping security classifications on materials are more indicative of these personnel.

Command and Control. These incumbents are also performing security type tasks, although of a different nature than the above group. Personnel assigned to this activity seem to be more involved with insuring classified items are secure, such as changing lock combinations on safes or vaults or determining customer authorizations to access files.

Data Automation. The 1,196 incumbents in this activity make up the largest group identified. These incumbents perform several tasks pertaining to the preparation and review of trouble reports, difficulty reports (DIREP) or emergency urgent change requests (EUCR). Generally, these reports are initiated at Base Data Processing Installations, where most of the Data Automation personnel are located.

Intelligence. Incumbents assigned to this activity seem to perform more security related tasks, due to the somewhat stricter security measures needed when working with intelligence data. Tasks such as inventorying magnetic media, or authorizing access to controlled areas are typical of incumbents assigned to this activity.

Satellite Tracking. These 87 incumbents are differentiated by the percent members performing certain production control and programming tasks. Tasks which best distinguish these incumbents include determining system run times and changing data processing system configurations by patching.

Comptroller. Personnel assigned to this activity are more likely to perform certain user assistance tasks than are personnel assigned to other activities. These user assistance tasks typically include distributing run schedules and picking up or delivering data to communications centers.

Research and Development. Several programming tasks and tasks involving magnetic media are indicative of these incumbents. Tasks such as degaussing magnetic media or designing error handling routines are more likely to be performed by personnel in this activity group than in any other group.

In addition to examining the tasks which best differentiate activity assigned groups, the computer systems utilized by activity assigned personnel were also examined. As expected, the computer systems utilized varies greatly between activity assigned groups. For example, Table 26 reveals that 44 percent of the personnel assigned to a Support Activity utilize the Burroughs B6700, while 70 percent of the Data Automation personnel utilize the Burroughs B3500. Some relatively unique users of computer systems include Global Weather Center personnel utilizing the Univac 1100, Combat Operations Centers personnel utilizing the Philco 1000 and Philco 2000, or Satellite Tracking personnel utilizing the Varian V70 series computer system. Overall, the Burroughs and Honeywell computer systems were among the most common, with almost all activity assigned groups using these systems to some extent.

Activity assigned personnel were also examined on the basis of perceived job interest, perceived utilization of talents and training, and reenlistment intentions. Table 27 reveals several groups, such as ADP Resources Management, Data Automation, Data Systems Design Center, Intelligence and

Comptroller personnel have relatively high job satisfaction when compared to other activity assigned groups. However, several other groups, such as Cargo/ Passenger Processing and Satellite Tracking personnel have relatively low job satisfaction. Finally, it is interesting to note that while Global Weather Center personnel have the greatest job interest, they also have the lowest reenlistment intentions.

Summary

Overall, the jobs and tasks performed remain relatively similar regardless of computer systems utilized or activity assigned. However, job satisfaction indicators vary greatly between activity assigned groups, with Cargo/ Passenger Processing and Satellite Tracking personnel having the lowest job satisfaction. Management should closely examine these two activity assigned groups to try and find ways to improve their job perceptions.

TABLE 25

TASKS WHICH BEST DIFFERENTIATE ACTIVITY ASSIGNED GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	ADP RESOURCES MANAGEMENT (N=73)	CARGO/ PASSENGER PROCESSING (N=48)	COMBAT OPERATIONS CENTER (N=49)	COMMAND AND CONTROL (N=98)	DATA AUTOMATION (N=1,196)	INTELLIGENCE (N=141)	SATELLITE TRACKING (N=87)	COMPTROLLER (N=19)	RESEARCH AND DEVELOPMENT (N=37)
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	(26)	58	71	67	53	77	64	53	70
CORRECT STOPPAGES ON DISK DRIVES	(12)	23	55	62	30	62	49	21	62
VERIFY CORRECTNESS OF BILLINGS FOR REPAIR, MAINTENANCE, OR RENT ON ADP EQUIPMENT	(36)	13	2	10	6	5	0	5	0
SORT CARDS BY MACHINES	15	(40)	22	7	16	3	5	21	8
COLLATE CARDS BY MACHINE	5	(17)	4	1	5	4	7	11	3
PREPARE CLASSIFIED MATERIAL FOR MAIL, DELIVERY, OR DISTRIBUTION	4	4	(27)	17	7	17	11	0	22
STAMP SECURITY CLASSIFICATIONS ON MATERIALS	8	4	(57)	37	13	47	22	5	43
CHANGE LOCK COMBINATIONS ON SAFES, VAULTS, OR CIPHER LOCKS	10	2	8	(18)	7	16	6	0	3
DETERMINE CUSTOMER AUTHORIZATION TO ACCESS FILES REQUESTED	14	8	24	(30)	13	27	16	0	16
MAINTAIN OR REVIEW DIREP, EUCR, OR SYSTEMS ADVISORY NOTICES (SAN)	19	8	2	3	(28)	0	0	16	0
PREPARE TROUBLE REPORTS, DIFFICULTY REPORTS (DIREP), OR EMERGENCY URGENT CHANGE REQUESTS (EUCR)	27	17	12	7	(37)	9	15	30	24
MAKE ENTRIES IN DISK PACK OR TAPE CONTROL LOGS	16	23	24	36	28	(43)	25	11	24
AUTHORIZE OR DENY ACCESS TO RESTRICTED OR CONTROLLED AREAS OR CLASSIFIED MATERIALS	19	8	27	36	26	(46)	36	26	24
DETERMINE PROGRAM RUN TIMES	8	2	8	10	9	12	(16)	5	14
CHANGE DATA PROCESSING SYSTEM CONFIGURATION BY PATCHING	7	8	12	12	11	9	(20)	0	8
DISTRIBUTE RUN SCHEDULES	5	10	6	6	19	7	7	(21)	8
PICK UP FROM OR DELIVER DATA TO COMMUNICATIONS CENTER	19	23	16	17	27	13	18	(32)	8
DEGAUSS MAGNETIC MEDIA	5	6	22	49	16	54	34	0	(62)
CERTIFY MAGNETIC MEDIA	4	4	16	24	1	26	10	0	(41)
DESIGN ERROR HANDLING ROUTINES	1	0	2	0	2	3	0	0	(14)

TABLE 26

COMMON COMPUTER SYSTEMS UTILIZED BY ACTIVITY ASSIGNED GROUPS
(PERCENT MEMBERS UTILIZING)

COMPUTER SYSTEMS	ADP RESOURCES MANAGEMENT (N=73)	CARGO/ PASSENGER PROCESSING (N=48)	DATA AUTOMATION (N=1,196)	COMP-TROLLER (N=19)	DATA SYSTEMS AND DESIGN CENTER (N=54)	COMMAND AND CONTROL (N=98)	DATA SERVICE CENTER (N=108)	SUPPORT ACTIVITY (N=64)	INTELLI-GENCE (N=141)	COMBAT OPERATIONS CENTER (N=49)	SATELLITE TRACKING (N=87)	GLOBAL WEATHER CENTER (N=53)	RESEARCH AND DEVELOP-MENT (N=37)
BURROUGHS B3500	(55)	(48)	(70)	(79)	(50)	7	12	-	4	2	1	-	8
BURROUGHS B4700	16	2	13	-	(48)	2	4	-	-	0	1	-	3
BURROUGHS B6700	7	-	1	-	-	1	3	(44)	-	-	-	-	-
CDC CYBRA 70	2	-	-	-	2	1	4	-	1	2	-	-	(16)
CDC 6600 SERIES	1	-	-	-	-	1	2	-	-	-	-	-	(16)
DEC/PCP 10 SERIES	-	-	-	-	-	-	-	-	11	2	1	-	-
DEC/PCP 11 SERIES	-	-	1	-	11	4	3	2	(42)	6	1	4	(14)
HONEYWELL/GE 600 SERIES	-	-	-	-	-	-	12	-	-	-	-	-	-
HONEYWELL H6060	11	12	7	-	22	10	19	3	7	(20)	2	-	11
HONEYWELL 700 SERIES	(26)	(33)	(30)	(16)	6	(25)	12	-	13	8	4	-	3
HONEYWELL 6000 SERIES	8	6	6	-	2	(46)	(25)	5	14	10	7	-	8
IBM 360 SERIES	-	-	3	-	-	-	17	19	(35)	-	(39)	4	(16)
IBM 3032 SERIES	-	-	-	-	-	-	8	-	-	-	-	-	-
PHILCO 1000	-	-	-	-	-	3	-	-	-	(22)	6	-	-
PHILCO 2000	-	-	-	-	-	3	-	-	-	(28)	9	-	-
UNIVAC 1100 SERIES	-	-	-	-	-	14	2	5	8	14	2	(72)	8
UNIVAC 9300	-	-	-	-	-	12	-	2	5	6	1	-	11
VARIAN V70 SERIES	-	-	-	-	-	1	-	-	-	2	(32)	-	-

TABLE 27

JOB SATISFACTION DATA FOR ACTIVITY ASSIGNED GROUPS
(PERCENT MEMBERS RESPONDING)

	ADP RESOURCES MANAGEMENT	CARGO/ PASSENGER PROCESSING	COMBAT OPERATIONS CENTER	COMMAND AND CONTROL	DATA AUTOMATION	DATA SERVICE CENTER	DATA SYSTEMS AND DESIGN CENTER	GLOBAL WEATHER CENTER	INTELLI-GENCE	SATELLITE TRACKING	COMP-TROLLER	RESEARCH AND DEVELOP-MENT	SUPPORT ACTIVITY
I FIND MY JOB:													
NO RESPONSE	-	-	-	2	2	4	2	-	-	-	10	-	5
DULL	16	29	31	21	12	27	17	17	21	38	20	23	19
SO-SO	11	21	14	16	13	17	25	5	18	17	10	8	16
INTERESTING	73	50	55	61	73	52	56	78	61	(45)	60	69	60
MY JOB UTILIZES MY TALENTS:													
NO RESPONSE	2	2	-	1	-	-	-	-	-	-	11	-	-
NOT AT ALL TO VERY LITTLE	18	49	47	33	23	33	32	25	35	48	16	27	39
FAIRLY WELL OR BETTER	80	(49)	53	66	77	67	68	75	65	52	73	73	61
MY JOB UTILIES MY TRAINING:													
NO RESPONSE	-	-	-	1	-	-	-	-	-	1	5	-	-
NOT AT ALL TO VERY LITTLE	37	52	49	34	24	45	26	49	32	58	16	40	45
FAIRLY WELL OR BETTER	63	48	51	65	76	55	74	51	68	(41)	79	60	55
I PLAN TO REENLIST:													
NO RESPONSE	-	2	2	1	2	1	-	2	2	-	5	-	5
NO OR PROBABLY NO	34	38	37	48	45	49	24	58	36	56	32	49	37
YES OR PROBABLY YES	66	60	61	51	53	50	76	(42)	62	(44)	63	51	58

Analysis of Organizational Levels

An additional analysis was performed to determine whether personnel working at various Air Force organizational levels were performing different jobs. Twelve organizational levels were examined, and include Air or Missile Division, Base Data Processing Installation, DOD or Joint Service, HQ USAF, Major Command, NATO or MAAG, NORAD, Numbered AF, Operating Location or Remote Site, Separate Operating Agency, Wing, and an "other" category. Generally, the job performed varies little across organizational levels, and primarily involves operator and production control tasks such as correcting stoppages on magnetic tape drives or printers, loading programs or data from cards, performing operator maintenance on ADP equipment, and notifying customers of production problems. However, three organizational levels (NORAD, Base Data Processing Installation, and Air or Missile Division) have personnel who perform several tasks which are relatively unique when compared to other organizational levels. A listing of these tasks can be found in Table 28, and a brief description of these organizational levels is provided below.

NORAD. The 90 incumbents working at this organizational level are more likely to change hardware systems configurations than personnel at other organizational levels. Fifty-four percent of the NORAD incumbents perform this task, while no other organizational level has more than 40 percent members performing the same task.

Base Data Processing Installation. This was the organizational level with the largest population identified, making up 40 percent of the total 511X0 sample. These incumbents perform a variety of differentiating tasks, most of which involve operator or programming functions. Tasks such as removing or replacing wires on PCAM or EAM equipment, assembling printed output, or working with customers in preparation of DIREP, EUCR, or trouble reports are performed by greater percentages of Base DPI personnel than personnel at other organizational levels.

Air or Missile Division. There are two tasks which best differentiate these 29 incumbents, one of which involves operator functions and the other is a programming function. Table 28 reveals that coding for graphic display plotters and correcting stoppages on collators are more likely to be performed by these incumbents. However, due to the small number of personnel working at this organizational level and the low percentages involved, this data must be evaluated with some caution.

Table 29 reveals the computer systems commonly utilized by all 12 organizational levels identified. The results are very similar with those found in the ANALYSIS OF ACTIVITY ASSIGNED GROUPS, in that the Burroughs and Honeywell computer systems are utilized by virtually all organizational levels. However, it is interesting to note that their are very few "unique" organizational level users of specific computer systems. In other words, there are very few computer systems utilized by only one or two organizational levels. A possible exception would be the Varian V70, which is primarily utilized by Air or Missile Division personnel.

Table 30 reveals various job satisfaction indicators by organizational level, such as perceived job interest, perceived utilization of talents and training, and reenlistment intentions. Overall, these perceptions are relatively the same regardless of organizational level. However, the personnel at NATO or MAAG seem to be the exception, since their perceived job interest, perceived utilization of talents and training, and reenlistment intentions are generally lower when compared to other organizational levels. On the positive side, personnel working at Base Data Processing Installations (the largest group identified) generally had better than average job satisfaction.

Summary

The overall jobs performed by 511X0 personnel varies little regardless of organizational level. There appears to be no computer systems utilized by less than six different organizational levels. In other words, there seems to be no specific computer system utilized only by a single organizational level. Finally, job satisfaction indicators remain relatively similar across organizational levels except that personnel working at NATO or MAAG had somewhat lower job satisfaction than personnel at other organizational levels.

TABLE 28

TASKS WHICH BEST DIFFERENTIATE ORGANIZATIONAL LEVEL GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	NORAD (N=90)	BASE DATA PROCESSING INSTALLATION (N=893)	AIR OR MISSILE DIVISION (N=29)
CHANGE HARDWARE SYSTEMS CONFIGURATIONS	(54)	8	21
REMOVE OR REPLACE PRE-WIRED CONTROL PANELS ON PCAM OR EAM EQUIPMENT	28	(43)	11
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	48	(70)	17
PREPARE TROUBLE REPORTS, DIFFICULTY REPORTS (DIREP), OR EMERGENCY URGENT CHANGE REQUESTS (EUCR)	10	(41)	9
CODE FOR GRAPHIC DISPLAY PLOTTERS	0	0	(10)
CORRECT STOPPAGES ON COLLATORS	1	4	(17)

TABLE 29

COMMON COMPUTER SYSTEMS UTILIZED BY ORGANIZATIONAL LEVEL GROUPS
(PERCENT MEMBERS UTILIZING)*

COMPUTER SYSTEMS	AIR OR MISSILE DIVISION (N=29)	BASE DATA PROCESSING INSTALLATION (N=893)	DOD OR JOINT SERVICE (N=73)	HQ USAF (N=80)	MAJOR COMMAND (N=378)	NATO OR MAAG (N=15)	NORAD (N=90)	NUMBERED AF (N=12)	OPERATING LOCATION OR REMOTE SITE (N=77)	SEPARATE OPERATING AGENCY (N=122)	WING (N=197)	OTHER (N=123)
BURROUGHS B3500	38	80	5	9	18	13	3	33	8	7	52	32
BURROUGHS B4700	-	15	-	5	9	7	-	8	1	5	5	18
CDC CYBRA 70	-	1	1	-	-	-	-	-	-	2	6	1
DEC/PDP 10 SERIES	-	-	5	-	1	-	-	8	8	1	-	2
DEC/PDP 11 SERIES	7	1	25	3	8	20	9	25	13	4	3	10
HONEYWELL/GE 600 SERIES	-	-	3	8	2	-	2	8	-	1	1	2
HONEYWELL H6060	-	3	22	16	24	27	18	-	3	6	2	12
HONEYWELL 700 SERIES	3	32	30	8	18	20	7	25	29	2	25	8
IBM 360 SERIES	35	2	25	8	10	20	17	33	27	14	5	9
IBM 370 SERIES	7	1	10	6	6	7	1	-	1	6	6	4
UNIVAC 1110 SERIES	7	-	14	4	4	-	12	25	1	4	13	5
VARIAN V70 SERIES	24	-	-	1	-	-	1	8	9	4	-	4

*COLUMNS DO NOT ADD TO 100 PERCENT SINCE RESPONDENTS COULD INDICATE MORE THAN ONE COMPUTER SYSTEM

TABLE 30

JOB SATISFACTION DATA FOR ORGANIZATIONAL LEVEL GROUPS
(PERCENT MEMBERS RESPONDING)

	AIR OR MISSILE DIVISION	BASE DATA PROCESSING INSTALLATION	DOD OR JOINT SERVICE	HQ USAF	MAJOR COMMAND	NATO OR MAAG	NORAD	NUMBERED AF	OPERATING LOCATION OR REMOTE SITE	SEPARATE OPERATING AGENCY	WING	OTHER
I FIND MY JOB:												
NO RESPONSE	3	2	3	-	2	7	1	-	-	2	5	1
DULL	17	10	23	22	19	27	29	25	29	21	14	32
SO-SO	14	13	18	19	15	27	16	17	18	16	12	15
INTERESTING	66	75	56	59	64	(39)	54	58	53	61	69	52
MY JOB UTILIZES MY TALENTS:												
NO RESPONSE	-	-	2	-	-	-	2	-	-	-	-	1
NOT AT ALL TO VERY LITTLE	38	19	40	40	30	53	40	42	44	36	25	41
FAIRLY WELL OR BETTER	62	81	58	60	70	(47)	58	58	56	64	75	58
MY JOB UTILIZES MY TRAINING:												
NO RESPONSE	-	1	-	-	-	-	1	-	-	2	-	-
NOT AT ALL TO VERY LITTLE	45	23	41	44	31	53	42	42	41	44	29	38
FAIRLY WELL OR BETTER	55	76	59	56	69	(47)	57	58	59	54	71	62
I PLAN TO REENLIST:												
NO RESPONSE	-	2	1	-	2	7	-	-	3	3	-	2
NO OR PROBABLY NO	52	44	32	45	43	47	44	33	44	34	50	33
YES OR PROBABLY YES	48	54	67	55	55	(46)	56	67	53	63	50	65

TRAINING ANALYSIS

Occupational survey data is just one of many sources of information which can be used to help make training programs more meaningful and relevant to students. Factors provided in occupational surveys which may be used in evaluating training are percent of first enlistment members performing task(s)*, utilization of equipment available at the technical school for training, task difficulty ratings, and training emphasis ratings. These factors can be used in evaluating the Specialty Training Standard (STS) and Plan of Instruction (POI) for the 511X0 specialty. Technical school personnel at Keesler AFB MS, matched inventory tasks to areas of instruction outlined in the STS, dated September 1978 and the POI for course 3ABR51130, dated for the Computer Operations specialty. A complete computer listing of the percent members performing, task difficulty, and training emphasis ratings for each task statement along with the STS and POI matching has been forwarded to the technical school for their use in reviewing training documents. A summary of that information is described below.

Analysis of Task Difficulty

The relative difficulty of each task in the task inventory was assessed through ratings by 54 experienced 7- and 9-skill level Computer Operations NCOs. These tasks were processed to produce an ordered listing of all tasks in terms of their relative difficulty and were standardized to have an average difficulty of 5.0 (standard deviation equals 1.0). (For a more complete description of these ratings, see the Task Factor Administration section in the INTRODUCTION.)

Table 31 lists those tasks rated the most difficult by a selected sample of senior 511X0 personnel. Most of the tasks are troubleshooting in nature, and seem to involve some aspect of computer operations, programming, or analysis. For example, debugging computer programs and coding job control languages seem to be programming type tasks, while changing hardware systems configurations and isolating causes of machine stops or malfunctions are operations related. Overall, very few of the most difficult tasks are performed by more than 25 percent of the total 511X0 sample.

Table 32 provides a listing of the most difficult tasks performed by at least 30 percent of the 511X0 first enlistment and 511X0 total sample. These tasks are primarily operation tasks involving program or equipment troubleshooting, such as isolating problems on production runs and correcting stoppages on disk drives. It is interesting to note that these more difficult tasks are performed by the same percentages of first enlistment personnel as by the total sample. In other words, some of the more difficult technical tasks are not only performed by experienced 511X0 personnel but also by fairly recent technical school graduates.

*First enlistment data is probably more valid for use in making training decisions involving initial training than 3-skill level data since 3-skill level personnel are very quickly entered into upgrade training and many will be given a 5-level duty AFSC. Thus, at any point in time, the number of 3-skill level personnel is small and the jobs they perform may not be completely representative of the tasks which new personnel need to be trained to perform.

Most of the tasks rated average in task difficulty seem to be related to management and supervision (see Table 33). Some of these tasks include reviewing job descriptions, directing use of supplies for economy, or conducting or participating in staff meetings. Generally, these tasks are performed by only relatively small percentages of computer operators.

Table 34 lists the tasks rated the least difficult by senior 511X0 personnel. Generally, these tasks involved routine library or operations functions, such as placing scratch tapes in computer rooms, removing printed data output, and labelling magnetic media externally. As expected, a larger percentage of 511X0 personnel performed these least difficult tasks than the tasks rated above or average in difficulty.

Analysis of Training Emphasis

The relative training emphasis of each task in the inventory was assessed through ratings of 51 experienced 7- and 9-skill level Computer Operations NCOs. These ratings were processed to produce an ordered listing of all tasks in terms of their recommended emphasis in training for first enlistment personnel. These ratings had an average rating of 1.3 and a standard deviation of 1.4. (For a more complete description of these ratings see the section on Task Factor Administration in the INTRODUCTION.)

Table 35 lists those tasks which senior 511X0 personnel perceived most needed to be trained. These tasks involved computer operations, such as powering up CPUs, correcting stoppages on printers, or performing emergency power-off procedures. It was interesting to note that most of these tasks were performed by a majority of 511X0 first enlistment personnel.

Tasks rated average in training emphasis seemed to involve a variety of computer related areas, especially supervision or routine operation tasks (see Table 36). Some examples of the tasks rated average in training emphasis include preparing personnel work schedules, scheduling leave or liberty, or picking up or delivering data to communications center. Generally, these tasks are not performed by as many first enlistment personnel as the tasks rated high in training emphasis.

Finally, Table 37 displays the tasks which were rated the lowest in training emphasis by 511X0 personnel. Generally, these tasks involve supervision or computer programming, such as conducting or writing staff studies, interviewing personnel to fill position vacancies, or designing input or output formats such as card formats. However, the tasks consistently rated the lowest in training emphasis seemed to be finance or budget related, such as furnishing purchasing information to vendors or customers. Overall, the tasks rated the lowest in training emphasis were performed by less than five percent of the first enlistment sample.

Analysis of Computer Systems Groups

In addition to examining the most difficult tasks and the tasks rated highest in training emphasis by 511X0 personnel, those incumbents utilizing six common computer systems were examined for job and task differences. As

expected, the overall jobs and tasks performed varies little regardless of the computer system utilized. This tends to validate the projected consolidation of the Burroughs computer operator course currently taught at Sheppard AFB TX into the Honeywell computer operator course taught at Keesler AFB MS.

Generally, personnel utilizing these six computer systems can be integrated into two groups - those personnel working primarily with base level computer systems (Burroughs B3500, Burroughs B4700, and Honeywell 700 Series) and those personnel working primarily with MAJCOM-level computer systems (Honeywell 6000, Honeywell H6060, and IBM 360). Overall, all incumbents spend a majority of their job time on operator and production control tasks. However, several tasks seemed relatively unique to base level computer systems personnel, while several other tasks were performed by larger percentages of MAJCOM-level computer systems personnel. Tasks involving Punch Card Accounting Machines (PCAM), Difficulty Reports (DIREP), or bursting printed outputs were performed by greater percentages of base level computer systems personnel. Tasks involving disks or magnetic media, such as correcting stoppages on disk drives or degaussing magnetic media, were performed by greater percentages of MAJCOM computer systems personnel (see Table 38).

Various types of background information (TAFMS, job satisfaction indices, etc.) were examined, and no substantial differences were noted between computer systems groups. However, it was interesting to note that personnel did not report utilizing only one computer system. For example, Table 39 reveals 33 percent of the personnel utilizing the Burroughs B3500 also utilize the Honeywell 700 Series computer system. The key factor here is the apparent commonality of computer systems, with many Burroughs computer systems personnel also utilizing IBM or Honeywell equipment.

Finally, the percent members utilizing various types of peripheral equipment were also examined, and several differences were noted. Table 40 reveals four types of peripheral equipment were indicative of base level computer systems personnel, which include bursters, decollators, IBM 557 repro punches and microfilm/fiche readers. Eight types of peripheral equipment were utilized by equal percentages of base and MAJCOM-level computer systems groups, such as cathode-ray tube terminals, IBM 59 card punches, line printers, magnetic tape cleaners, magnetic tape units, off-line printers, on-line card punches, and teletype machines/terminals. Table 40 also reveals eight pieces of peripheral equipment were utilized by larger percentages of MAJCOM-level computer systems personnel, and include disk/drive units, IBM 129 keypunches, magnetic tape certifiers, magnetic tape degaussers, on-line card readers/punches, on-line controllers, systems consoles, and X-Y plotters. It is interesting to note that many of the tasks which differentiated base and MAJCOM-level computer systems personnel were directly related to the types of peripheral equipment which also differentiated these two groups.

Overall, the tasks and jobs performed by these six computer systems groups remains basically the same regardless of the computer system utilized. This validates the current projection of a single computer operator course for all incoming 511X0 personnel, instead of a single course for each major type of computer system utilized. This fact was further demonstrated by Table 39, since many of the personnel utilizing one computer system also reported

utilizing other types of computer systems. However, some task and peripheral equipment differences were noted, which tends to validate the existing Special Experience Identifier (SEI) structure cur. .tly used to designate Burroughs, Honeywell, and IBM computer systems personnel.

Specialty Training Standard (STS) Analysis

Survey data were compared to the 511X0 Specialty Training Standard (STS), dated September 1978. This document descibes the minimum proficiency recommended for each task or knowledge for qualification at the 3-, 5-, and 7-skill levels. Overall, the STS presented an excellent overview of the jobs and tasks performed by 511X0 personnel with no major discrepancies being noted in either the listing of job functions or the major tasks performed.

Plan of Instruction (POI) Analysis

The 51130 Plan of Instruction (POI), dated January 1979, for the 25-day Computer Operator course taught at Keesler AFB MS was also reviewed in a general sense against the survey data. The POI contains the qualitative requirements for course E3ABR51130-002, Computer Operator, in terms of criterion objectives for each unit of instruction and shows time, training standard correlation, and support materials and lesson plans. Overall, all of the major criterion objectives were supported by the survey data and training appears to be relevant and cost effective. However, two tasks were performed by at least 30 percent of first enlistment (1-48 months TAFMS) personnel and the tasks were rated above average in training emphasis and task difficulty, but were not referenced to a criterion objective in the 51130 POI. These tasks are listed below along with their respective training emphasis and task difficulty ratings, as well as the percentage of first enlistment incumbents performing.

TASKS	TRAINING EMPHASIS (AVERAGE = 1.4)	TASK DIFFICULTY (AVERAGE = 5.0)	PERCENT OF FIRST ENLISTMENT INCUMBENTS PERFORMING (N=905)
PREPARE TROUBLE REPORTS, DIFFICULTY REPORTS (DIREP), OR EMERGENCY URGENT CHANGE REQUESTS (EUCR)	3.14	5.25	30
ANALYZE OUTPUT PRODUCTS FOR COMPLIANCE WITH STANDARDS OR SPECIFICATIONS	3.00	5.34	33

TABLE 31

REPRESENTATIVE TASKS RATED HIGH IN TASK DIFFICULTY BY DAFSC 511X0 PERSONNEL

TASKS	TASK DIFFICULTY	PERCENT 511X0 OF SAMPLE PERFORMING (N=2,228)	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
DEBUG COMPUTER PROGRAMS	6.82	6	5
ISOLATE CAUSES OF MACHINE STOPS OR MALFUNCTIONS	6.75	50	53
CHANGE HARDWARE SYSTEMS CONFIGURATIONS	6.59	19	15
CODE JOB CONTROL LANGUAGES	6.51	4	3
ISOLATE MALFUNCTIONS IN RJE UNITS	6.45	15	16
ANALYZE OUPUT PRODUCTS OF OTHER FUNCTIONAL SYSTEMS FOR INTERFACE WITH EXISTING SYSTEMS	6.43	3	3
OPTIMIZE JOB CONTROL LANGUAGE (JCL)	6.43	7	8
DETERMINE IMPACT OF SYSTEMS ERRORS	6.40	9	8
DETERMINE CAUSES OF PROGRAM HALTS OR ABENDS	6.37	19	18
REVIEW RECOMMENDATIONS FOR NEEDED DATA SYSTEMS EQUIPMENT	6.37	3	1
MODIFY OR UPDATE EXISTING COMPUTER PROGRAMS	6.33	6	5
INTERROGATE MEMORY LOCATION VIA CONSOLE ACTION	6.28	24	26
WIRE PANELS FOR PCAM OR EAM EQUIPMENT	6.28	5	5
ANALYZE DATA BASE REQUIREMENTS	6.26	7	6
DETERMINE CAUSE OF FAULTY OUTPUT PRODUCTS	6.22	52	49
MAKE RECOMMENDATIONS FOR ADP EQUIPMENT UPGRADE	6.19	5	2
CHANGE DATA PROCESSING SYSTEM CONFIGURATION BY PATCHING	6.19	10	11
CODE SYSTEM UTILITY PROGRAMS	6.17	4	1
ANALYZE CONSOLE PRINTOUTS TO IDENTIFY COMPUTER STOPPAGES	6.16	40	36
REVIEW OPERATIONAL PROGRAMS OR SYSTEMS FOR APPLICABILITY OF NEW TECHNIQUES	6.15	3	3
PREPARE DATA PROCESSING COST REPORTS OR ESTIMATES	6.12	6	2
DETERMINE SYSTEMS INPUT OR OUTPUT REQUIREMENTS	6.08	9	9
ISOLATE PROBLEMS ON PRODUCTION RUNS	6.07	40	40
BRIEF FUNCTIONAL AREA PERSONNEL ON CAPABILITIES OF PROPOSED ADP SYSTEMS OR EQUIPMENT	6.03	4	2
PREPARE JUSTIFICATION FOR ACQUISITION OF ADP EQUIPMENT	6.03	4	1
INTERPRET INDICATING OR REGISTER LIGHTS ON CENTRAL PROCESSING UNITS (CPUs)	6.03	40	43
DETERMINE INTERRELATIONSHIPS AMONG FILES, DOCUMENTS, AND ITEMS	6.01	6	6
IMPLEMENT SYSTEM CHANGE PACKAGES OR EMERGENCY URGENT CHANGE PACKAGES (EUCP)	6.00	3	4
DEVELOP OR IMPROVE ADP WORK METHODS OR PROCEDURES	6.00	11	5
WRITE JOB PROFICIENCY GUIDES (JPG)	5.98	6	1

TABLE 32

TASKS RATED HIGH IN TASK DIFFICULTY AND PERFORMED BY AT LEAST 30 PERCENT OF THE TOTAL 511X0 SAMPLE

TASKS	TASK DIFFICULTY	PERCENT 511X0 OF SAMPLE PERFORMING (N=2,228)	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
ISOLATE CAUSES OF MACHINE STOPS OR MALFUNCTIONS	6.75	50	53
DETERMINE CAUSE OF FAULTY OUTPUT PRODUCTS	6.22	52	49
ANALYZE CONSOLE PRINTOUTS TO IDENTIFY COMPUTER STOPPAGES	6.16	40	36
ISOLATE PROBLEMS ON PRODUCTION RUNS	6.07	40	40
INTERPRET INDICATING OR REGISTER LIGHTS ON CENTRAL PROCESSING UNITS (CPU)	6.03	40	43
DETERMINE ALTERNATE METHODS FOR ACCOMPLISHING JOB REQUIREMENTS	5.91	31	28
PARTICIPATE WITH PROGRAMMERS IN TESTING OR DEBUGGING PROGRAMS	5.90	30	27
PERFORM SYSTEM INITIALIZATION PROCEDURES	5.52	58	64
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	5.47	60	66
CORRECT STOPPAGES ON DISK DRIVES	5.43	38	37
ENTER DATA OR PROGRAMS INTO COMPUTER VIA CONSOLE	5.41	51	58
ANALYZE OUTPUT PRODUCTS FOR COMPLIANCE WITH STANDARDS OR SPECIFICATIONS	5.34	34	33
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	5.33	55	60
ASSEMBLE, REARRANGE, OR EDIT INPUT OR OUTPUT DATA	5.29	34	35
RESOLVE PRODUCTION PROBLEMS WITH CUSTOMERS	5.15	37	32

TABLE 33

REPRESENTATIVE TASKS RATED AVERAGE IN TASK DIFFICULTY BY DAFSC 511X0 PERSONNEL

TASKS	TASK DIFFICULTY	PERCENT 511X0 OF SAMPLE PERFORMING (N=2,228)	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
EVALUATE USE OF SUPPLIES FOR ECONOMY OF MANAGEMENT	5.05	4	1
DIRECT MEDIA LIBRARY OPERATIONS	5.05	5	3
SUPERVISE PERSONNEL HANDLING CLASSIFIED MATERIAL	5.05	15	2
MONITOR INTERACTIVE PROCESSING	5.04	11	10
BRIEF PERSONNEL ON SYSTEM CHANGES	5.03	21	11
INITIATE REMOTE JOB ENTRY (RJE) SYSTEM MODE CHANGES	5.03	21	27
ESTABLISH OR UPDATE MASTER SCHEDULE OF ADP SYSTEMS OR CYCLES	5.02	10	9
DETERMINE ADHERENCE TO RUN SCHEDULES	5.01	16	9
ESTABLISH OR MAINTAIN STUDY REFERENCE FILES	5.01	7	2
ALLOCATE IMMEDIATE ACCESS STORAGE	5.00	4	4
REVIEW JOB DESCRIPTIONS	4.99	9	5
INSTRUCT OR TRAIN PERSONNEL TO PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	4.98	25	16
COORDINATE WITH OFFICES OF PRIMARY RESPONSIBILITY (OPR) ON NEW OR REVISED REPORTING REQUIREMENTS	4.98	23	20
CONDUCT OR PARTICIPATE IN STAFF MEETINGS	4.98	15	5
PREPARE INCIDENT REPORTS (IR) OR CASUALTY REPORTS (CASREP) ON DOWN EQUIPMENT	4.95	10	9
MONITOR DATA TRANSMISSION CONTROL UNITS	4.94	9	8
INSTRUCT OR TRAIN PERSONNEL IN PREPARING SUPPLY DOCUMENTS, SUCH AS REQUSITIONS, INVOICES, OR VOUCHERS	4.94	3	1
VERIFY CUSTOMER ENGINEER (CE) WORK DONE	4.93	17	8
EDIT REPORTS	4.92	10	2
MAINTAIN OR REVIEW DIREP, EUCR, OR SYSTEMS ADVISORY NOTICES (SAN)	4.92	18	16
RESPOND TO INQUIRIES FROM CUSTOMERS	4.90	54	49
PREPARE LETTERS OF DISCONTINUANCE OR RELEASE OF ADP EQUIPMENT	4.90	4	1
DEVELOP PCAM OR EAM SCHEDULES	4.90	4	1
DESIGN LOCAL FORMS OR SERVICE DOCUMENTS	4.89	5	1
INSPECT USER REMOTE OR RJE INSTALLATIONS	4.89	5	3
INSPECT CLASSIFIED MATERIAL	4.89	5	8
ESTABLISH OR UPDATE LISTINGS FOR CLASSIFIED JOBS	4.89	4	3
ESTABLISH OR UPDATE RUN DOCUMENTATION FILES	4.88	9	7

TABLE 34

REPRESENTATIVE TASKS RATED LOW IN TASK DIFFICULTY BY 511X0 PERSONNEL

TASKS	TASK DIFFICULTY	PERCENT 511X0 OF SAMPLE PERFORMING (N=2,228)	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
PLACE SCRATCH TAPES IN COMPUTER ROOM	2.42	28	32
CHANGE OR ALIGN PAPER IN PRINTERS	2.54	71	78
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	2.56	51	55
NOTIFY CUSTOMERS OF JOB COMPLETION	2.56	46	47
REMOVE PRINTED DATA OUTPUT	2.59	64	72
PICK UP FROM OR DELIVER DATA TO COMMUNICATIONS CENTER	2.64	21	23
REPRODUCE COPIES OF DOCUMENTS USING OFFICE COPY MACHINES	2.71	18	10
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	2.79	60	66
BIND COMPUTER PRINTOUTS	2.84	17	18
LABEL MAGNETIC MEDIA EXTERNALLY	2.85	60	67
PICK UP PARTS, TOOLS, OR SUPPLIES	2.85	13	12
LOAD OR UNLOAD TOOLS, SUPPLIES, OR EQUIPMENT	2.90	21	22
STAND INSPECTIONS	2.92	14	12
PARTICIPATE IN WORKING PARTIES OR FATIGUE DETAILS	2.92	24	34
INTERPRET CARDS BY MACHINE	2.94	57	65
DISTRIBUTE INFORMATIONAL MATERIAL, SUCH AS SAFETY OR VOTING PAMPHLETS	2.96	7	1
PACK OR UNPACK SUPPLIES OR EQUIPMENT	3.01	18	18
COMPARE TAPE IDENTIFICATIONS AND TAPE FILE-CONTROLS FOR AGREEMENT	3.06	43	44
DISTRIBUTE RUN SCHEDULES	3.10	14	15
POWER UP OR POWER DOWN PUNCH CARD ACCOUNTING MACHINE (PCAM) OR ELECTRONIC ACCOUNTING MACHINE (EAM) EQUIPMENT	3.10	31	32
MAKE ENTRIES ON WORK OR RUN REQUESTS, SUCH AS INITIALS, REMARKS, OR PANEL READINGS	3.12	46	49
CLEAN OR FIELD DAY BARRACKS OR WORK FACILITIES	3.13	29	41
LABEL PUNCHED CARD DESKS OR FILES	3.14	34	38
STAMP SECURITY CLASSIFICATION ON MATERIALS	3.14	19	19
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	3.18	60	68
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	3.19	67	66
LABEL PRINTED OUTPUT	3.19	31	34
MOUNT OR DISMOUNT CARRIAGE CONTROL TAPES	3.20	48	53
DRIVE SEDAN TYPE VEHICLES (MILTARY OR COMMERCIAL)	3.21	11	8
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	3.21	50	59

TABLE 35

TASKS RATED HIGHEST IN TRAINING EMPHASIS BY DAFSC 511X0 PERSONNEL

TASKS	TRAINING EMPHASIS	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	6.94	66
POWER UP OR POWER DOWN CPU	6.84	60
PERFORM SYSTEM INITIALIZATION PROCEDURES	6.75	64
PERFORM EMERGENCY POWER OFF PROCEDURES	6.55	48
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	6.22	70
ISOLATE CAUSES OF MACHINE STOPS OR MALFUNCTIONS	5.96	53
CORRECT STOPPAGES ON PRINTERS	5.92	74
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	5.80	69
ADDRESS OR CALL SYSTEM VIA CONSOLE TO REQUEST INFORMATION	5.73	58
INTERPRET INDICATING LIGHTS ON PERIPHERAL EQUIPMENT	5.73	54
ANALYZE CONSOLE PRINTOUTS TO IDENTIFY COMPUTER STOPPAGES	5.71	36
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	5.67	61
ENTER DATA OR PROGRAMS INTO COMPUTER VIA CONSOLE	5.59	57
INTERPRET INDICATING OR REGISTER LIGHTS ON CENTRAL PROCESSING UNITS (CPU)	5.57	43
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	5.57	56
CORRECT STOPPAGES ON CARD READERS	5.43	72
CHANGE OR ALIGN PAPER IN PRINTERS	5.41	78
LOAD OR UNLOAD DISKS	5.33	43
LOAD PROGRAMS OR DATA FROM TAPES	5.27	67
INITIATE BATCHED JOB PROCESSING	5.20	64
LOAD PROGRAMS OR DATA FROM CARDS	5.16	68
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	5.12	60
MAKE ENTRIES IN ADP EQUIPMENT DAILY UTILIZATION LOGS	5.10	52
CORRECT STOPPAGES ON CARD PUNCH MACHINES	5.08	69
LABEL MAGNETIC MEDIA EXTERNALLY	5.04	67
STORE OR SAFEGUARD CLASSIFIED MATERIAL	4.92	28
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	4.90	66
PREPARE CARRIAGE CONTROL TAPES	4.90	47
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	4.86	76
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	4.78	63

TABLE 36

TASKS RATED AVERAGE IN TRAINING EMPHASIS BY DAFSC 511X0 PERSONNEL

TASKS	TRAINING EMPHASIS	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
BRIEF PERSONNEL ON SYSTEM CHANGES	1.41	11
WIRE PANELS FOR PCAM OR EAM EQUIPMENT	1.39	5
ESTABLISH OR UPDATE MASTER SCHEDULE OF ADP SYSTEMS OR CYCLES	1.39	9
STAND WATCH DUTY OR EXTRA DETAILS, SUCH AS PHONE WATCH, DUTY NCO, OR ASSISTANT DUTY NCO	1.39	10
PREPARE PERSONNEL WORK SCHEDULES	1.37	5
ESCORT VISITORS OR TECHNICAL REPRESENTATIVES	1.37	21
PICK UP FROM OR DELIVER DATA TO COMMUNICATIONS CENTER	1.35	23
CHANGE DATA PROCESSING SYSTEM CONFIGURATION BY PATCHING	1.35	11
PARTICIPATE ON ADVISORY BOARDS OR COMMITTEES	1.33	4
SUPERVISE PERSONNEL HANDLING CLASSIFIED MATERIALS	1.31	2
INSPECT SUPPLIES OR EQUIPMENT	1.31	11
SCHEDULE LEAVE OR LIBERTY	1.29	3
ALLOCATE IMMEDIATE ACCESS STORAGE	1.28	4
PREPARE OR REVISE COMPUTER OPERATOR INSTRUCTIONS	1.28	15
PREPARE OR UPDATE INDIVIDUAL TRAINING RECORDS	1.28	2
TRAIN CUSTOMERS ON PROCEDURES, SUCH AS TERMINAL OPERATIONS OR USE OF RETRIEVAL LANGUAGES	1.28	4
ADJUST READ OR SENSING DEVICES IN DATA PROCESSING EQUIPMENT	1.25	12
STORE SUPPLIES OR EQUIPMENT	1.25	16
CONDUCT OR MONITOR ACTIVITY FIRE DRILLS	1.25	1
MAINTAIN AREA FIRST AID KITS OR MEDICAL SUPPLIES	1.25	1
CORRECT STOPPAGES ON PAPER TAPE READER-PUNCHES	1.22	6
PREPARE OR MAINTAIN LISTS OF PERSONNEL AUTHORIZED ACCESS TO OR USE OF ON-LINE DEVICES	1.22	5
REVIEW CLASSIFIED MATERIAL DESTRUCTION PLANS	1.22	5
ESTABLISH OR UPDATE TECHNICAL PUBLICATIONS LIBRARIES	1.22	2
COLLATE CARDS BY MACHINE	1.20	8
COORDINATE DATA AUTOMATION REQUIREMENTS	1.20	4
DESIGN CARRIAGE CONTROL TAPES	1.18	4
MONITOR DATA TRANSMISSION CONTROL UNITS	1.16	8
REVIEW WORKLOAD PLANNING OR SCHEDULING DOCUMENTS	1.16	8
TEST MODEMS	1.14	6
DETERMINE IMPACT OF SYSTEM ERRORS	1.14	8

TABLE 37

TASKS RATED LOW IN TRAINING EMPHASIS BY DAFSC 511X0 PERSONNEL

TASKS	TRAINING EMPHASIS	PERCENT OF FIRST ENLISTMENT PERSONNEL PERFORMING (N=905)
FURNISH PURCHASING INFORMATION TO VENDORS OR CUSTOMERS	.06	*
PREPARE OR DISTRIBUTE PROCUREMENT DOCUMENTS, SUCH AS PURCHASE ORDERS OR CONTRACTS	.08	*
EVALUATE BIDS, QUOTATIONS, OR PROPOSALS FOR REWARDS	.08	*
PREPARE TEST ANALYSIS REPORTS	.10	*
PREPARE SYSTEM TEST PLANS	.10	*
REVIEW CREDIT OR DAMAGE CLAIMS	.12	*
DESIGN INPUT OR OUTPUT FORMATS, SUCH AS CARD, PRINTED, OR MICROFORM REPORT FORMATS	.12	1
PREPARE SYSTEM USER MANUALS	.14	1
MODIFY SYSTEMS APPLICATIONS	.14	*
EVALUATE PERFORMANCE HISTORY ON SPECIFIC JOBS	.16	2
PREPARE DOCUMENTATION FOR INDIVIDUAL PROGRAMS	.18	3
PREPARE OR REVIEW SECURITY CLEARANCE REQUESTS	.20	1
CONDUCT OR WRITE STAFF STUDIES	.22	*
WRITE CIVILIAN PERFORMANCE RATINGS OR SUPERVISORY APPRAISALS	.22	*
INTERVIEW PERSONNEL TO FILL POSITION VACANCIES	.23	*
VERIFY PROBLEM STATEMENTS	.25	3
IDENTIFY PROGRAM EXECUTION TIMING FACTORS	.25	5
GRADE TRAINING TESTS OR EXAMINATIONS	.27	*
INSTRUCT OR TRAIN PERSONNEL IN PROGRAMMING TECHNIQUES	.29	*
DEVELOP DIRECTIVES GOVERNING ADP EQUIPMENT USAGE	.31	*
DETERMINE IMPACT OF BUDGET CHANGES	.31	*
PERFORM TECHNICAL FEASIBILITY STUDIES	.31	*
PREPARE PROGRAM TEST SPECIFICATIONS OR INSTRUCTIONS	.31	*
TYPE CORRESPONDENCE OR FORMS	.33	2
REVIEW ENLISTED PERFORMANCE EVALUATIONS	.33	*
PREPARE SOFTWARE SYSTEM CONFIGURATION CONVERSION PLANS	.33	*
REINK PRINTER RIBBONS	.33	6
CANCEL REQUISITIONS	.35	*
ISSUE TOOLS, EQUIPMENT, OR SUPPLIES	.37	*
COMPUTE ADP EQUIPMENT LEASE CHARGES	.39	2

* DENOTES LESS THAN ONE PERCENT

TABLE 38

TASKS WHICH BEST DIFFERENTIATE COMPUTER SYSTEM GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	BASE LEVEL			MAJCOM LEVEL		
	PERSONNEL UTILIZING THE BURROUGHS B3500 (N=1,022)	PERSONNEL UTILIZING THE BURROUGHS B4700 (N=239)	PERSONNEL UTILIZING THE HONEYWELL 700 SERIES (N=496)	PERSONNEL UTILIZING THE HONEYWELL 6000 (N=217)	PERSONNEL UTILIZING THE HONEYWELL H6060 (N=203)	PERSONNEL UTILIZING THE IBM 360 (N=185)
POWER UP OR POWER DOWN PUNCH CARD ACCOUNTING MACHINE (PCAM) OR ELECTRONIC ACCOUNTING MACHINE (EAM) EQUIPMENT	40	41	43	24	26	29
REMOVE OR REPLACE PRE-WIRED CONTROL PANELS ON PCAM OR EAM EQUIPMENT	42	39	37	12	14	6
SPLICE MAGNETIC TAPES OR LEADERS	50	50	43	11	19	25
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	68	60	67	27	33	36
PREPARE TROUBLE REPORTS, DIFFICULTY REPORTS (DIREP), OR EMERGENCY URGENT CHANGE REQUESTS (EUCR)	41	40	37	9	18	10
WORK WITH CUSTOMERS IN PREPARATION OF DIREP, EUCR, OR TROUBLE REPORTS	22	17	18	7	6	6
MAINTAIN OR REVIEW DIREP, EUCR, OR SYSTEMS ADVISORY NOTICES (SAN)	32	24	28	5	5	5
CHANGE HARDWARE SYSTEMS CONFIGURATIONS	9	12	16	41	33	24
CORRECT STOPPAGES ON DISK CONTROLLERS	12	17	20	47	48	26
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	9	14	17	49	51	29
CORRECT STOPPAGES ON DISK DRIVES	27	29	37	62	65	63
LOAD OR UNLOAD DISKS	28	31	40	68	70	80
DEGAUSS MAGNETIC MEDIA	12	16	16	37	33	43
ISSUE OR RECEIVE MAGNETIC MEDIA FROM LIBRARY	32	30	31	44	46	44
STAMP SECURITY CLASSIFICATION ON MATERIALS	8	9	16	33	32	37
ESCORT VISITORS OR TECHNICAL REPRESENTATIVES	21	18	24	35	36	47

TABLE 39

PERCENT MEMBERS UTILIZING COMPUTER SYSTEMS BY COMPUTER SYSTEMS GROUPS

	BASE LEVEL			MAJCOM LEVEL		
COMPUTER SYSTEMS	PERSONNEL UTILIZING THE BURROUGHS B3500	PERSONNEL UTILIZING THE BURROUGHS B4700	PERSONNEL UTILIZING THE HONEYWELL 700 SERIES	PERSONNEL UTILIZING THE HONEYWELL 6000	PERSONNEL UTILIZING THE HONEYWELL H6060	PERSONNEL UTILIZING THE IBM 360
BURROUGHS B3500	(100)	(51)	(69)	9	(21)	11
BURROUGHS B4700	12	(100)	16	3	13	3
HONEYWELL 700 SERIES	(33)	20	(100)	18	(20)	6
HONEYWELL 6000	2	3	9	(100)	(23)	4
HONEYWELL H6060	4	10	8	(21)	(100)	4
IBM 360	2	3	2	4	4	(100)

TABLE 40

COMMON TYPES OF PERIPHERAL EQUIPMENT UTILIZED BY COMPUTER SYSTEMS GROUPS
(PERCENT MEMBERS UTILIZING)

	BASE LEVEL			MAJCOM LEVEL		
PERIPHERAL EQUIPMENT	PERSONNEL UTILIZING THE BURROUGHS B3500	PERSONNEL UTILIZING THE BURROUGHS B4700	PERSONNEL UTILIZING THE HONEYWELL 700 SERIES	PERSONNEL UTILIZING THE HONEYWELL 6000	PERSONNEL UTILIZING THE HONEYWELL H6060	PERSONNEL UTILIZING THE IBM 360
BURSTER	51	52	48	8	12	12
DECOLLATOR	66	59	61	19	31	32
IBM 557 REPRO PUNCH	26	36	22	13	15	6
MICROFILM/FICHE READER	30	25	24	9	9	16
CATHODE-RAY TUBE TERMINAL	24	53	34	43	32	48
IBM 59 CARD PUNCH	47	52	44	38	37	56
LINE PRINTER	65	63	72	59	64	74
MAGNETIC TAPE CLEANER	53	53	48	32	41	68
MAGNETIC TAPE UNIT	70	71	74	65	74	84
OFF-LINE PRINTER	11	13	15	15	17	32
ON-LINE CARD PUNCH	46	49	51	56	67	48
TELETYPE MACHINE/TERMINAL	15	17	29	30	31	21
DISK/DRIVE UNIT	38	42	46	58	66	75
IBM 129 KEYPUNCH	19	23	19	29	27	36
MAGNETIC TAPE CERTIFIER	5	12	7	27	22	25
MAGNETIC TAPE DEGAUSSER	19	25	20	38	39	57
ON-LINE CONTROLLER	15	18	22	48	59	52
ON-LINE CARD READER/PUNCH	34	39	46	49	54	35
SYSTEM CONSOLE	50	50	59	62	69	65
X-Y PLOTTER	1	1	2	5	11	32

IMPLICATIONS

The results of this occupational survey indicate there are no major problem areas in the 511X0 specialty. The specialty structure appears to have remained stable, the dropping of the three shreds in 1978 has not had any noticeable effect on specialty jobs, and the AFR 39-1 Specialty Descriptions provide a good, concise overview of jobs and tasks performed by 511X0 personnel.

Some interesting job satisfaction trends were noted with various organizational level and activity assigned groups. Personnel working at the NATO or MAAG organizational level and the Cargo/Passenger Processing and Satellite Tracking activity-assigned groups had lower than normal job satisfaction. Management needs to be aware of these groups and should try to develop methods to improve the jobs performed by personnel working at these units.

APPENDIX A

JOB TYPE DESCRIPTIONS

Listed below are brief descriptions of the job types identified in the Computer Operations job structure. Generally, the job types within any cluster are fairly similar, and the job performed varies little between job types. For additional information, the tables at the back of Appendix A reveal various duty, background, and job satisfaction data for all of the job types identified. (For further explanation of the job types identified, see the JOB STRUCTURE section of this report.)

Management Personnel

There are four job types within this cluster, and the two key differentiating factors among the job types are the number of tasks performed and the relative percent time spent on operator, production control, and supervisory duties. However, all of the job types spend at least 28 percent of their job time on supervisory duties. Also, it is important to note that both the organizational level assigned and the common computer systems utilized changes little across job types. The personnel in these job types work primarily at the Base Data Processing Installation (DPI), MAJCOM, or Wing level and seem to utilize the Burroughs B3500, Burroughs B4700, or Honeywell 700 Series computer system.

Production Control Supervisors all reported supervising and 90 percent hold the 7- or 9-skill level. These incumbents were primarily differentiated by the large amount of time spent (20 percent) performing production control tasks. These respondents seem to perform both a supervisory and a customer service role, in that they are responsible for insuring that customers are satisfied with their products. Typical tasks for these 31 respondents include:

counsel personnel on personal or military matters
respond to inquiries from customers
resolve production problems with customers
schedule leave or liberty
notify customers of production problems

NCOICs of Computer Operations spend 21 percent of their job time performing operator tasks and also perform the greatest average number of tasks (182). These 163 incumbents perform a first-line supervisor job at Base DPIs, and seem to perform a large number of technical operator tasks in addition to supervisory tasks. Typical tasks performed by these incumbents include:

notify supervisors or management of machine failure, downtime, or processing problems
supervise personnel operating ADP equipment
isolate causes of machine stops or malfunctions
respond to inquiries from customers
review shift reports

It is interesting to note that this job type has the highest JDI (21.8) of all 511X0 job groups, and 78 percent hold the 7- or 9-skill level.

NCOICs of Data Automation perform an average of 66 tasks and spend 51 percent of their job time performing supervisory tasks. These 98 incumbents all hold the 7-skill level or better, average 234 months TAFMS, and work primarily at the MAJCOM level. Incumbents in this job type seem to perform a second-line supervisor or middle management type job, in that very few of the common tasks that this group performs are technical in nature. Examples of common tasks performed by these respondents include:

conduct or participate in staff meetings
review enlisted performance evaluations
determine duty assignments for incoming personnel
review job descriptions
respond to inquiries from customers

Evaluation and Assistance Team Personnel perform a staff assistance type role which provides additional technical expertise to bases where computer services are ha ·g problems with meeting schedules, production runs, etc. Each MAJCOM usually has its own Evaluation and Assistance Team, which consists of three to five people who have many years of experience in the career field. These teams have both scheduled or periodic visits and also visit bases on request if specific problems arise. Typical tasks for these incumbents include:

prepare evaluation and assistance reports
in-brief or out-brief on evaluation and assistance visit objectives or survey results
conduct or participate in staff meetings
review standard operating procedures (SOPs)
evaluate training methods, techniques, or programs

The experience of this group is reflected in their average TAFMS (246 months) and average paygrade (E-7, E-8). It is also interesting to note the extremely high job satisfaction indices of these incumbents, with 100 percent finding their job interesting and 100 percent perceiving their talents and training are utilized at least fairly well. (For more info mation about these job types see Tables I, II, and III.)

Computer Operations Personnel

There are 21 job types identified in this cluster, with almost all job types spending at least 50 percent of their job time on operator tasks. Nineteen of these job types can be grouped into three functional areas, which are the operator, operator-production control, and operator-supervisor areas. The job types differ between functional areas, but are very homogeneous within any functional area. A clearer picture of the Computer Operations Personnel job types can be gained by closely examining the functional areas associated with this cluster.

Operator Functional Area. There are six job types within this functional area, which include: Intelligence Operations Computer Operators, Wing Level Computer Operators, Satellite Tracking Computer Operators, Major Command Level Computer Operators, Base/Wing Level Computer Operators, and Junior Computer Operators. These job types are fairly homogeneous, and concentrate primarily on performing operator tasks, with very little time spent on other duties. Typical tasks for these incumbents include:

perform operator maintenance on ADP equipment
respond to or correct errors via console operation
power up or power down peripheral equipment
punch cards
correct stoppages on printers
mount or dismount magnetic or paper tapes
load programs or data from tapes
change or align paper in printers
replace print ribbons in data processing equipment
label magnetic media externally

Generally, the number of tasks performed and the amount of time spent performing operator tasks are the key distinguishing factors between these job types. For example, Intelligence Operations Computer Operators perform an average of 83 tasks and spend 56 percent of their job time on operator tasks, while Junior Computer Operators perform only 21 tasks but spend 87 percent of their job time performing operator tasks. Intelligence Operations Computer Operators are also unique because of: (1) their relatively high JDI (14.9); (2) all hold the 5- or 7-skill level; and (3) these personnel primarily work at the DOD/Joint Service level. A review of job satisfaction indices indicate that both Satellite Tracking Computer Operators and Junior Computer Operators are fairly dissatisfied with their jobs. Many of the incumbents in the Satellite Tracking Computer Operations job type work at remote sites while Junior Computer Operators perform a relatively routine and narrow job. These may be reasons for the low job satisfaction indices of these two groups. (For more information about these job types see Tables IV, V, and VI.)

Operator-Production Control Functional Area. The eight job types identified in this functional area are similar to the job types in the Operator Functional Area in that these groups spend a majority of their job time performing operator tasks. However, these eight job types are differentiated due to the somewhat greater time they spend performing production control tasks. Tasks indicative of the job types in this functional area include:

power up or power down peripheral equipment
notify customers of job completion
respond to inquiries from customers
review console output for job status
interpret cards by machine
notify supervisors or management of machine failure, downtime, or processing problems
distribute or deliver output products
correct stoppages on card punch machines
mount or dismount magnetic or paper tapes
resolve production problems with customers

The job types in this functional area are very homogeneous, with essentially the same job being performed across job types. The key differentiating factor seems to be the average number of tasks performed, although differences can also be noticed in the computer systems utilized, the organizational level assigned, and the job satisfaction indices of the personnel in these job types.

Base Level Computer Operations-Production Control Personnel perform the greatest average number of tasks (115) and average 67 months TAFMS. These 230 incumbents perform such unique tasks as performing shift turnover procedures, instructing personnel in CPU operations, and reviewing shift reports. Operator-Production Control Personnel work primarily at Base DPIs and average 39 months TAFMS. These incumbents have relatively high job satisfaction indices, and are more likely to perform tasks, such as labeling printed output and labeling punched card decks or files. Operator-Production Control Scheduling Personnel also work primarily at Base DPIs and 92 percent hold the 5-skill level. These incumbents perform the same job as the previous job type, except these respondents perform approximately 15 less tasks. It is interesting to note this groups job satisfaction indices are relatively low, even though the job varies little between the two job types. MAJCOM Operator-Production Control Personnel primarily use Honeywell and IBM computer systems, which is somewhat unique for job types in this functional area. Satellite Tracking Operator-Production Control Personnel are the primary users of the Data General Nova 1200, DEC/PCP-11 Series, and Philco 2000 computer systems. These 25 incumbents are stationed primarily at NORAD, and distinguishing tasks include stamping security classification on materials and notifying programmers or analysts of processing problems. Cargo/Passenger Processing Computer Operators are differentiated due to the relatively large amount of time spent (27 percent) performing production control tasks. These 46 incumbents have extremely low job satisfaction indices, with only 24 percent perceiving their talents and training are utilized. Tasks routinely performed by these incumbents include removing printed data output, notifying customers of job completion, and responding to inquiries from customers. Operator-Production Control Personnel spend a large amount of time (72 percent) performing operator tasks, such as punching cards and correcting stoppages on printers. Medical Operator-Production Personnel work primarily in hospitals to aid medical personnel in the use of computer systems. These incumbents typically input, update, or retrieve data using remote inquiry units, such as cathode-ray tubes (CRTs) or teletype, or distribute or deliver output products. (For more information about these job types, see Tables VII, VIII, and IX.)

Operator-Supervisor Functional Area. The five job types in this area perform primarily operator tasks, but in addition spend substantial amounts of time performing supervisory and training tasks. These incumbents seem to be first-line supervisors, with most holding the 7-skill level. This functional area is also homogeneous with respect to job types, with tasks such as:

supervising personnel operating ADP equipment
inspect personnel for military appearance
perform shift turnover procedures
instruct or train personnel in handling of magnetic media
review console output for job status
initiate batched job processing
prepare personnel work schedules
instruct or train personnel in CPU operations
address or call system via console to request information
supervise personnel handling classified material

These tasks are being performed by a majority of the personnel in this functional area. The five job types are Computer Operations/Technical Training Supervisors, Computer Operator Cargo/Passenger Processing Supervisors, Separate Operating Agency Computer Operations Supervisors, Computer Operations Technical Supervisors, and Computer Operations Intelligence Functions Supervisors.

The key differentiating factors for these job types are the average number of tasks performed and the amount of time spent performing operator and supervisor tasks. Computer Operator Cargo/Passenger Processing Supervisors are somewhat unique because only 33 percent are supervising; while these incumbents average 117 months TAFMS and a majority hold the 7-skill level or better. The low job satisfaction indices of this group may be a consequence of this data. Separate Operating Agencies Computer Operations Supervisors are also somewhat unique due to the relatively low amount of job time spent on operator tasks and high amount of time on supervisory tasks. This job type is fairly similar to the NCOICs of Computer Operations found in the Management Personnel Cluster. However, the amount of time spent performing operator tasks is probably the greatest discriminator between these two job types. (For more information about these job types, see Tables X, XI, and XII.)

Two job types were identified in the Computer Operations Personnel cluster which performed unique tasks which did not permit them to be grouped into any functional area. These job types are briefly discussed below.

Input/Output Controllers. These 26 incumbents perform a job fairly similar to the jobs performed by job types in the Operator-Production Control Functional Area in that these incumbents spend a majority of their job time on operator and production control tasks. However, these incumbents seem to work primarily with consoles, and typically perform such tasks as:

address or call system via console to request information
address or call system via console action to respond to system requests
enter data or programs into computer via console
review console for output status on jobs
resolve production problems with customers

Tasks involving printers, card readers, etc., are not performed very frequently by these incumbents, and this is probably the key factor that differentiated this job type. (For more information about this job type, see Tables X, XI, and XII.)

Secured Operations Personnel are differentiated due to the large amount of time spent on security tasks. These incumbents perform primarily an operator job but in addition are responsible for insuring that all classified computer products are secure. Typical tasks for these 12 incumbents include:

store or safeguard classified material
file magnetic media
distribute classified material
remove printed data output
destroy classified or privacy act material

These incumbents perform a large average number of tasks (123) and all hold the 5- or 7-skill level. It is also interesting to note that these respondents were the primary users of the Systems Engineering Labs 3255 computer system. (For more information about this job type, see Tables X, XI, and XII.)

TABLE I

RELATIVE PERCENT TIME SPENT PERFORMING DUTIES BY JOB TYPES IN THE MANAGEMENT PERSONNEL CLUSTER

DUTIES	PRODUCTION CONTROL SUPERVISORS (N=31)	NCOICs OF COMPUTER OPERATIONS (N=163)	NCOICs OF DATA AUTOMATION (N=98)	EVALUATION AND ASSISTANCE TEAM PERSONNEL (N=11)
OPERATOR FUNCTIONS	12	21	4	2
PRODUCTION CONTROL FUNCTIONS	20	8	4	3
LIBRARY FUNCTIONS	3	2	*	*
PROGRAMMING FUNCTIONS	6	3	1	*
ANALYSIS FUNCTIONS	8	6	2	8
SECURITY FUNCTIONS	5	6	6	3
TRAINING FUNCTIONS	8	8	8	6
SUPERVISORY FUNCTIONS	28	30	51	58
ADMINISTRATIVE FUNCTIONS	7	7	13	14
SUPPLY OR CONTRACTING FUNCTIONS	1	5	4	3
GENERAL MILITARY FUNCTIONS	4	3	5	3

* DENOTES LESS THAN ONE PERCENT

TABLE II

BACKGROUND INFORMATION FOR JOB TYPES IN THE MANAGEMENT PERSONNEL CLUSTER

	PRODUCTION CONTROL SUPERVISORS	NCOICs OF COMPUTER OPERATIONS	NCOICs OF DATA AUTOMATION	EVALUATION AND ASSISTANCE TEAM PERSONNEL
AVERAGE NUMBER OF TASKS PERFORMED	123	182	66	63
AVERAGE PAYGRADE	E-6	E-6	E-7	E-7, E-8
PERCENT SUPERVISING	100%	80%	89%	55%
JOB DIFFICULTY INDEX	18.8	21.8	13.8	14.1
DAFSC:				
51130	0%	0%	0%	0%
51150	0%	18%	0%	0%
51170	73%	54%	37%	45%
51199	17%	24%	45%	36%
CEM CODE 51100	0%	4%	18%	19%
511X1	10%	0%	0%	0%
AVERAGE MONTHS TAFMS	169	172	234	246
PERCENT IN FIRST ENLISTMENT	NONE	6%	NONE	NONE
MOST COMMON COMPUTER SYSTEMS UTILIZED	BURROUGHS B3500	BURROUGHS B3500	BURROUGHS B3500	BURROUGHS B3500
	HONEYWELL 700 SERIES	HONEYWELL 700 SERIES	HONEYWELL 700 SERIES	BURROUGHS B4700
	BURROUGHS B4700	BURROUGHS B4700	HONEYWELL 6000	HONEYWELL 700 SERIES
ORGANIZATIONAL LEVEL ASSIGNED	BASE DPI	BASE DPI	MAJCOM	MAJCOM
	WING	MAJCOM	BASE DPI	BASE DPI
	MAJCOM	WING	WING	-----

TABLE III

JOB SATISFACTION INDICES FOR JOB TYPES IN THE MANAGEMENT PERSONNEL CLUSTER
(PERCENT MEMBERS RESPONDING)

	PRODUCTION CONTROL SUPERVISORS	NCOICs OF COMPUTER OPERATIONS	NCOICs OF DATA AUTOMATION	EVALUATION AND ASSISTANCE TEAM PERSONNEL
I FIND MY JOB:				
NO RESPONSE	-	1	3	-
DULL	6	12	13	-
SO-SO	10	9	17	-
INTERESTING	84	78	67	100
MY JOB UTILIZES MY TALENTS:				
NO RESPONSE	-	1	-	-
NOT AT ALL TO VERY LITTLE	6	19	12	-
FAIRLY WELL OR BETTER	94	80	88	100
MY JOB UTILIZES MY TRAINING:				
NO RESPONSE	-	-	-	-
NOT AT ALL TO VERY LITTLE	16	21	21	-
FAIRLY WELL OR BETTER	84	79	79	100
I PLAN TO REENLIST:				
NO RESPONSE	3	4	2	-
NO OR PROBABLY NO	29	37	41	36
YES OR PROBABLY YES	68	59	57	64

TABLE IV

RELATIVE PERCENT TIME SPENT PERFORMING DUTIES BY OPERATOR JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

DUTIES	INTELLIGENCE OPERATIONS COMPUTER OPERATORS (N=11)	WING LEVEL COMPUTER OPERATORS (N=406)	SATELLITE TRACKING COMPUTER OPERATORS (N=19)	MAJOR COMMAND LEVEL COMPUTER OPERATORS (N=59)	BASE/WING LEVEL COMPUTER OPERATORS (N=98)	JUNIOR COMPUTER OPERATORS (N=28)
OPERATOR FUNCTIONS	(56)	(75)	(63)	(77)	(84)	(87)
PRODUCTION CONTROL FUNCTIONS	9	8	8	7	6	4
LIBRARY FUNCTIONS	4	5	7	5	2	4
PROGRAMMING FUNCTIONS	4	1	1	*	*	*
ANALYSIS FUNCTIONS	1	*	7	*	*	*
SECURITY FUNCTIONS	6	1	1	3	1	*
TRAINING FUNCTIONS	5	2	2	1	*	*
SUPERVISORY FUNCTIONS	8	2	9	3	2	*
ADMINISTRATIVE FUNCTIONS	2	4	2	*	*	1
SUPPLY OR CONTRACTING FUNCTIONS	2	*	5	2	*	*
GENERAL MILITARY FUNCTIONS	3	*	*	*	2	*
		2	2	2	*	*
					2	1

* DENOTES LESS THAN ONE PERCENT

TABLE V

BACKGROUND INFORMATION FOR OPERATOR JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

	INTELLIGENCE OPERATIONS COMPUTER OPERATORS	WING LEVEL COMPUTER OPERATORS	SATELLITE TRACKING COMPUTER OPERATORS	MAJOR COMMAND LEVEL COMPUTER OPERATORS	BASE/WING LEVEL COMPUTER OPERATORS	JUNIOR COMPUTER OPERATORS
AVERAGE NUMBER OF TASKS PERFORMED	83	65	54	51	35	21
AVERAGE PAYGRADE	E-4, E-5	E-3, E-4	E-4	E-3, E-4	E-3, E-4	E-3, E-4
PERCENT SUPERVISING	18%	15%	NONE	2%	10%	11%
JOB DIFFICULTY INDEX	14.9	11.2	9.8	9.3	6.7	4.2
DAFSC:						
51130	0%	14%	16%	12%	17%	18%
51150	73%	76%	68%	80%	73%	71%
51170	27%	9%	16%	8%	7%	11%
51199	0%	0%	0%	0%	1%	0%
CEM CODE 51100	0%	0%	0%	0%	0%	0%
511X1	0%	1%	0%	0%	2%	0%
AVERAGE MONTHS TAFMS	76	41	49	48	43	49
PERCENT IN FIRST ENLISTMENT	36%	64%	68%	58%	63%	54%
MOST COMMON COMPUTER SYSTEMS UTILIZED	UNIVAC 9300	BURROUGHS B3500	CDC 3800	HONEYWELL 6000	BURROUGHS B3500	HONEYWELL 6000
	UNIVAC 1100 SERIES	HONEYWELL 700 SERIES	VARIAN V70 SERIES	HONEYWELL H6060	BURROUGHS B4700	VARIAN V70 SERIES
	DEC/PDP-11 SERIES	BURROUGHS B4700	DEC/PDP-11 SERIES	IBM 370 SERIES	IBM 360 SERIES	HONEYWELL H6060
ORGANIZATIONAL LEVEL ASSIGNED	DOD/JOINT SERVICE	BASE DPI	BASE DPI	MAJCOM	BASE DPI	HQ USAF
	HQ USAF	WING	OPERATING LOCATION OR REMOTE SITE	BASE DPI	MAJCOM	MAJCOM
	NORAD	MAJCOM	OTHER	HQ USAF	WING	BASE DPI

TABLE VI

JOB SATISFACTION INDICES FOR OPERATOR JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

	INTELLIGENCE OPERATIONS COMPUTER OPERATORS	WING LEVEL COMPUTER OPERATORS	SATELLITE TRACKING COMPUTER OPERATORS	MAJOR COMMAND LEVEL COMPUTER OPERATORS	BASE/WING LEVEL COMPUTER OPERATORS	JUNIOR COMPUTER OPERATORS
I FIND MY JOB:						
NO RESPONSE	9	3	-	1	3	3
DULL	9	9	37	29	14	43
SO-SO	18	14	21	19	17	25
INTERESTING	64	74	42	51	66	29
MY JOB UTILIZES MY TALENTS:						
NO RESPONSE	8	1	-	-	-	4
NOT AT ALL TO VERY LITTLE	46	20	42	36	22	46
FAIRLY WELL OR BETTER	46	79	58	64	78	50
MY JOB UTILIZES MY TRAINING:						
NO RESPONSE	-	1	-	-	-	-
NOT AT ALL TO VERY LITTLE	45	19	58	36	20	39
FAIRLY WELL OR BETTER	55	80	42	64	80	61
I PLAN TO REENLIST:						
NO RESPONSE	9	2	-	2	1	-
NO OR PROBABLY NO	27	49	74	53	55	57
YES OR PROBABLY YES	[illegible]	49	26	45	44	43

TABLE VII

RELATIVE TIME SPENT PERFORMING DUTIES BY OPERATOR-PRODUCTION CONTROL JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

DUTIES	BASE LEVEL COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL (N=230)	CENTER PERSONNEL (N=11)	COMPUTER CONTROL AND SCHEDULING PERSONNEL (N=42)	MAJCOM PRODUCTION AND CONTROL PERSONNEL (N=84)	SATELLITE TRACKING COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL (N=25)	CARGO/ PASSENGER PROCESSING COMPUTER OPERATORS (N=46)	OPERATOR-PRODUCTION PERSONNEL (N=14)	MEDICAL OPERATOR PRODUCTION PERSONNEL (N=15)
OPERATOR FUNCTIONS	53	57	56	60	66	52	72	65
PRODUCTION CONTROL FUNCTIONS	11	16	19	13	10	27	13	14
LIBRARY FUNCTIONS	6	5	4	5	8	1	3	4
PROGRAMMING FUNCTIONS	2	5	2	2	2	*	1	1
ANALYSIS FUNCTIONS	2	4	1	1	1	*	*	*
SECURITY FUNCTIONS	5	1	7	7	3	7	4	4
TRAINING FUNCTIONS	6	3	*	2	2	1	1	*
SUPERVISION FUNCTIONS	10	4	6	5	4	4	1	4
ADMINISTRATIVE FUNCTIONS	1	1	*	*	*	2	1	1
SUPPLY OR CONTRACTING FUNCTIONS	2	1	2	1	*	2	1	4
GENERAL MILITARY FUNCTIONS	2	*	2	3	2	3	*	3

* DENOTES LESS THAN ONE PERCENT

TABLE VIII

BACKGROUND INFORMATION FOR OPERATOR-PRODUCTION CONTROL JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

	BASE LEVEL COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL	CENTER PERSONNEL	COMPUTER CONTROL AND SCHEDULING PERSONNEL	MAJCOM PRODUCTION AND CONTROL PERSONNEL	SATELLITE TRACKING COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL	CARGO/ PASSENGER PROCESSING COMPUTER OPERATORS	OPERATOR-PRODUCTION PERSONNEL	MEDICAL OPERATOR PRODUCTION PERSONNEL
AVERAGE NUMBER OF TASKS PERFORMED	115	94	79	78	63	48	37	32
AVERAGE PAYGRADE	E-4	E-3, E-4	E-3, E-4	E-4	E-4	E-3, E-4	E-3, E-4	E-4, E-5
PERCENT SUPERVISING	37%	9%	25%	14%	16%	24%	7%	13%
JOB DIFFICULTY INDEX	17.1	15.3	13.2	12.9	11.6	8.5	6.7	6.2
DAFSC:								
51130	2%	9%	8%	5%	16%	7%	7%	13%
51150	71%	82%	92%	81%	72%	85%	79%	27%
51170	26%	9%	0%	14%	8%	7%	14%	40%
51199	0%	0%	0%	0%	0%	0%	0%	0%
CEM CODE 51100	0%	0%	0%	0%	0%	0%	0%	0%
511X1	1%	0%	0%	0%	4%	1%	0%	20%
AVERAGE MONTHS TAFMS	67	39	51	50	51	42	49	86
PERCENT IN FIRST ENLISTMENT	40%	73%	58%	50%	52%	61%	50%	13%
MOST COMMON COMPUTER SYSTEMS UTILIZED	BURROUGHS B3500	BURROUGHS B3500	HONEYWELL 700 SERIES	HONEYWELL 6000	DATA GENERAL NOVA 1200	HONEYWELL 700 SERIES	BURROUGHS B3500	HONEYWELL 700 SERIES
	HONEYWELL 700 SERIES	BURROUGHS B4700	BURROUGHS B3500	IBM 360 SERIES	DEC/PDP-11 SERIES	BURROUGHS B6700	HONEYWELL 700 SERIES	----
	BURROUGHS B4700	----	----	HONEYWELL H6060	PHILCO 2000	----	BURROUGHS B4700	----
ORGANIZATIONAL LEVEL ASSIGNED	BASE DPI	BASE DPI	BASE DPI	MAJCOM	NORAD	MAJCOM	BASE DPI	OTHER
	MAJCOM	OTHER	SEPARATE OPERATING AGENCIES	NORAD	OPERATING LOCATION OR REMOTE SITE	OPERATING LOCATION OR REMOTE SITE	OTHER	SEPARATE OPERATING AGENCIES
	WING	----	MAJCOM	WING	OTHER	NORAD	NATO/MAAG	BASE DPI

TABLE IX

JOB SATISFACTION INDICES FOR OPERATOR-PRODUCTION CONTROL JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER
(PERCENT MEMBERS RESPONDING)

	BASE LEVEL COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL	CENTER PERSONNEL	COMPUTER CONTROL AND SCHEDULING PERSONNEL	MAJCOM PRODUCTION AND CONTROL PERSONNEL	SATELLITE TRACKING COMPUTER OPERATIONS-PRODUCTION CONTROL PERSONNEL	CARGO/ PASSENGER PROCESSING COMPUTER OPERATORS	OPERATOR-PRODUCTION PERSONNEL	MEDICAL OPERATOR PRODUCTION PERSONNEL
I FIND MY JOB:								
NO RESPONSE	1	9	-	2	1	-	-	7
DULL	12	9	25	18	24	37	29	47
SO-SO	9	-	8	19	20	26	21	7
INTERESTING	78	82	67	61	55	(37)	50	(39)
MY JOB UTILIZES MY TALENTS:								
NO RESPONSE	1	-	8	1	-	-	-	-
NOT AT ALL TO VERY LITTLE	22	9	59	35	32	76	36	67
FAIRLY WELL OR BETTER	77	91	(33)	64	68	(24)	64	(33)
MY JOB UTILIZES MY TRAINING:								
NO RESPONSE	2	-	-	1	1	-	-	7
NOT AT ALL TO VERY LITTLE	19	18	67	34	39	76	50	53
FAIRLY WELL OR BETTER	79	82	(33)	65	60	(24)	50	40
I PLAN TO REENLIST:								
NO RESPONSE	3	-	8	4	4	-	-	-
NO OR PROBABLY NO	46	27	58	51	44	61	43	40
YES OR PROBABLY YES	51	73	(34)	45	52	(39)	57	60

TABLE X

RELATIVE PERCENT TIME SPENT ON DUTIES BY OPERATOR-SUPERVISOR, INPUT-OUTPUT CONTROLLER, AND SECURED OPERATIONS JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

	OPERATOR-SUPERVISOR JOB TYPES						
DUTIES	COMPUTER OPERATIONS/ TECHNICAL TRAINING SUPERVISORS (N=42)	COMPUTER OPERATOR CARGO/ PASSENGER PROCESSING SUPERVISORS (N=15)	SEPARATE OPERATING AGENCIES COMPUTER OPERATIONS SUPERVISORS (N=38)	COMPUTER OPERATIONS TECHNICAL SUPERVISORS (N=38)	COMPUTER OPERATIONS INTELLIGENCE FUNCTIONS SUPERVISORS (N=14)	INPUT/ OUTPUT CONTROLLERS (N=26)	SECURED OPERATIONS PERSONNEL (N=12)
OPERATOR FUNCTIONS	46	41	36	59	62	50	40
PRODUCTION CONTROL FUNCTIONS	8	12	6	5	5	18	12
LIBRARY FUNCTIONS	3	*	2	4	2	2	14
PROGRAMMING FUNCTIONS	2	2	2	*	2	5	2
ANALYSIS FUNCTIONS	*	*	2	*	1	5	1
SECURITY FUNCTIONS	5	8	3	4	5	3	14
TRAINING FUNCTIONS	11	7	12	9	2	2	2
SUPERVISORY FUNCTIONS	23	15	32	16	14	13	6
ADMINISTRATIVE FUNCTIONS	2	4	2	*	2	2	1
SUPPLY OR CONTRACTING FUNCTIONS	*	4	*	*	*	*	3
GENERAL MILITARY FUNCTIONS	2	6	3	2	4	1	3

* DENOTES LESS THAN ONE PERCENT

TABLE XI

BACKGROUND INFORMATION FOR OPERATOR-SUPERVISOR, INPUT/OUTPUT CONTROLLERS, AND SECURED OPERATIONS JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER

	OPERATOR-SUPERVISOR JOB TYPES						
	COMPUTER OPERATIONS/ TECHNICAL TRAINING SUPERVISORS	COMPUTER OPERATOR CARGO/ PASSENGER PROCESSING SUPERVISORS	SEPARATE OPERATING AGENCIES COMPUTER OPERATIONS SUPERVISORS	COMPUTER OPERATIONS TECHNICAL SUPERVISORS	COMPUTER OPERATIONS INTELLIGENCE FUNCTIONS SUPERVISORS	INPUT/ OUTPUT CONTROLLERS	SECURED OPERATIONS PERSONNEL
AVERAGE NUMBER OF TASKS PERFORMED	104	88	71	66	51	50	123
AVERAGE PAYGRADE	E-5, E-6	E-5	E-5, E-6	E-5	E-5	E-5	E-4, E-5
PERCENT SUPERVISING	88%	33%	95%	82%	36%	23%	17%
JOB DIFFICULTY INDEX	16.9	14.4	13.9	11.9	10.2	11.4	17.1
DAFSC:							
51130	0%	0%	0%	0%	0%	3%	0%
51150	14%	27%	18%	45%	50%	42%	83%
51170	79%	53%	76%	55%	43%	35%	17%
51199	7%	7%	3%	0%	0%	12%	0%
CEM CODE 51100	0%	0%	0%	0%	0%	0%	0%
511X1	0%	13%	3%	0%	7%	8%	0%
AVERAGE MONTHS TAFMS	138	117	164	109	121	107	75
PERCENT IN FIRST ENLISTMENT	NONE	7%	NONE	5%	7%	23%	25%
MOST COMMON COMPUTER SYSTEMS UTILIZED	BURROUGHS B3500	HONEYWELL 700 SERIES	BURROUGHS B3500	IBM 360 SERIES	IBM 370 SERIES	BURROUGHS B6700	SYSTEMS ENGINEERING LABS 3255
	IBM 360 SERIES	DEC/PDP-11 SERIES	HONEYWELL H6060	BURROUGHS B3500	DEC/PDP-11 SERIES	HONEYWELL H6060	HONEYWELL 6000 SERIES
	HONEYWELL 700 SERIES	HARRIS 1620	HONEYWELL 700 SERIES	HONEYWELL 700 SERIES	UNIVAC 1100 SERIES	PHILCO 2000 SERIES	HONEYWELL H6060
ORGANIZATIONAL LEVEL ASSIGNED	MAJCOM	OPERATING LOCATION/REMOTE SITE	NORAD	MAJCOM	MAJCOM	SEPARATE OPERATING AGENCIES	MAJCOM
	BASE DPI	HQ USAF	MAJCOM	BASE DPI	HQ USAF	MAJCOM	WING
	SEPARATE OPERATING AGENCIES	WING	SEPARATE OPERATING AGENCIES	OTHER	NORAD	NORAD	DOD/JOINT SERVICE

TABLE XII

JOB SATISFACTION INDICES FOR OPERATOR-SUPERVISOR, INPUT/OUTPUT CONTROLLER, AND SECURED OPERATIONS JOB TYPES IN THE COMPUTER OPERATIONS PERSONNEL CLUSTER
(PERCENT MEMBERS RESPONDING)

	OPERATOR-SUPERVISOR JOB TYPES						
	COMPUTER OPERATIONS/ TECHNICAL TRAINING SUPERVISORS	COMPUTER OPERATOR CARGO/ PASSENGER PROCESSING SUPERVISORS	SEPARATE OPERATING AGENCIES COMPUTER OPERATIONS SUPERVISORS	COMPUTER OPERATIONS TECHNICAL SUPERVISORS	COMPUTER OPERATIONS INTELLIGENCE FUNCTIONS SUPERVISORS	INPUT/ OUTPUT CONTROLLERS	SECURED OPERATIONS PERSONNEL
I FIND MY JOB:							
NO RESPONSE	-	-	-	5	7	-	-
DULL	17	40	24	11	21	8	17
SO-SO	2	20	8	11	14	15	25
INTERESTING	81	(40)	68	73	58	77	58
MY JOB UTILIZES MY TALENTS:							
NO RESPONSE	-	-	-	3	-	4	-
NOT AT ALL TO VERY LITTLE	14	53	26	18	14	19	42
FAIRLY WELL OR BETTER	86	(47)	74	79	86	77	58
MY JOB UTILIZES MY TRAINING:							
NO RESPONSE	-	-	-	3	-	-	-
NOT AT ALL TO VERY LITTLE	14	60	40	21	21	46	25
FAIRLY WELL OR BETTER	86	(40)	60	76	79	54	75
I PLAN TO REENLIST:							
NO RESPONSE	-	-	3	-	-	-	-
NO OR PROBABLY NO	29	26	26	44	36	23	42
YES OR PROBABLY YES	71	74	71	56	64	77	58

APPENDIX B

REPRESENTATIVE TASKS PERFORMED BY ADP EQUIPMENT MANAGERS

TASKS	PERCENT MEMBERS PERFORMING
REVIEW ADP EQUIPMENT MAINTENANCE RECORDS	90
PUNCH CARDS	86
PREPARE ADP MANAGEMENT REPORTS	84
REVIEW ADP EQUIPMENT DAILY UTILIZATION LOGS	80
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	70
VERIFY CORRECTNESS OF BILLINGS FOR REPAIR, MAINTENANCE, OR RENT ON ADP EQUIPMENT	70
PARTICIPATE IN ADP EQUIPMENT ACCEPTANCE TESTS	70
PREPARE MACHINE UTILIZATION REPORTS	66
PREPARE JOB ON-RUN SHEETS	63
COMPUTE ADP EQUIPMENT LEASE CHARGES	62
REPRODUCE COPIES OF DOCUMENTS USING OFFICE COPY MACHINES	61
PREPARE LETTERS OF INSTALLATION OR ACCEPTANCE OF ADP EQUIPMENT	59
PREPARE ACCEPTANCE TEST REPORTS	59
EDIT REPORTS	58
EVALUATE EQUIPMENT UTILIZATION	55
DRAFT CORRESPONDENCE, SUCH AS LETTERS, MESSAGES, OR DISPOSITION FORMS (DF)	55
PREPARE DATA PROCESSING COST REPORTS OR ESTIMATES	55
PREPARE LETTERS OF DISCONTINUANCE OR RELEASE OF ADP EQUIPMENT	54
PROGRAM KEYPUNCH MACHINES	52
PREPARE UNCLASSIFIED INPUT OR OUTPUT MEDIA FOR MAIL, DELIVERY, OR DISTRIBUTION	51
VERIFY CUSTOMER ENGINEER (CE) WORK DONE	49
ADMINISTER COMPLIANCE WITH CONTRACTS	48
PLAN FOR EQUIPMENT INSTALLATION	48
CONFIRM CONTRACT TERMS, SUCH AS DELIVERY DATE, PRICE, OR QUANTITY	47
PREPARE CREDIT OR DAMAGE CLAIMS	46

REPRESENTATIVE TASKS PERFORMED BY ADP CONTRACT AND BUDGET PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
COMPUTE ADP EQUIPMENT LEASE CHARGES	82
VERIFY CORRECTNESS OF BILLINGS FOR REPAIR, MAINTENANCE, OR RENT ON ADP EQUIPMENT	71
CONFIRM CONTRACT TERMS, SUCH AS DELIVERY DATE, PRICE, OR QUANTITY	71
COORDINATE DATA AUTOMATION REQUIREMENTS	71
PREPARE LETTERS OF DISCONTINUANCE OR RELEASE OF ADP EQUIPMENT	65
DRAFT CORRESPONDENCE, SUCH AS LETTERS, MESSAGES, OR DISPOSITION FORMS (DF)	65
ADMINISTER COMPLIANCE WITH CONTRACTS	65
REVIEW PROCUREMENT DOCUMENTS	53
RESEARCH STATUS OF PURCHASE ORDERS	53
COORDINATE DATA PROJECT PLANS	53
COORDINATE DATA PROJECT DIRECTIVES	53
DETERMINE ACTION FOR ADP EQUIPMENT REPAIR OR REPLACEMENT	53
PREPARE VENDOR INVOICE CERTIFICATES	47
DETERMINE MODIFICATIONS OR AMENDMENTS TO CONTRACTS	47
PREPARE ADP MANAGEMENT REPORTS	41
PREPARE LETTERS OF INSTALLATION OR ACCEPTANCE OF ADP EQUIPMENT	41
REVIEW RECOMMENDATIONS FOR NEEDED DATA SYSTEMS EQUIPMENT	41
PREPARE DATA PROCESSING COST REPORTS OR ESTIMATES	41
REVIEW DATA PROJECT DIRECTIVES	41
REVIEW DATA AUTOMATION REQUIREMENTS	41
REPRODUCE COPIES OF DOCUMENTS USING OFFICE COPY MACHINES	41
REVIEW ADP EXCESS OR AVAILABILITY BULLETINS FOR AVAILABLE EQUIPMENT	41
ADMINISTER DELIVERY OF OPEN PURCHASE ORDERS	35
REVIEW DATA PROJECT PLANS	35
PUNCH CARDS	35
PREPARE BILLS FOR DATA PROCESSING SERVICES	29

REPRESENTATIVE TASKS PERFORMED BY ADP SYSTEMS ACQUISITION PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
REVIEW DATA AUTOMATION REQUIREMENTS	92
COORDINATE DATA AUTOMATION REQUIREMENTS	92
REVIEW DATA PROJECT PLANS	83
COORDINATE DATA PROJECT DIRECTIVES	83
COORDINATE DATA PROJECT PLANS	83
REVIEW DATA PROJECT DIRECTIVES	83
PREPARE DATA PROJECT DIRECTIVES	75
DRAFT CORRESPONDENCE, SUCH AS LETTERS, MESSAGES, OR DISPOSITION FORMS (DF)	75
PREPARE DATA PROJECT PLANS	67
REVIEW RECOMMENDATIONS FOR NEEDED DATA SYSTEMS EQUIPMENT	67
PREPARE RECOMMENDATIONS FOR CHANGES TO DATA AUTOMATION REQUIREMENTS	58
PREPARE RECOMMENDATIONS FOR SIZE AND CAPACITY OF PROPOSED ADP EQUIPMENT	50
PERFORM ECONOMICAL FEASIBILTY STUDIES	50
MAKE RECOMMENDATIONS FOR ADP EQUIPMENT UPGRADE	42
PREPARE HARDWARE SYSTEM CONVERSION PLANS	42
COORDINATE DEVELOPMENT SPECIFICATIONS	42
PREPARE JUSTIFICATION FOR ACQUISITION OF ADP EQUIPMENT	33
REVIEW REQUESTS FOR DATA PROCESSING SERVICES	33
COMPUTE ADP EQUIPMENT LEASE CHARGES	33
PREPARE PROJECT STATUS REPORTS	33
SPONSOR INCOMING PERSONNEL	33
REPRODUCE COPIES OF DOCUMENTS USING OFFICE COPY MACHINE	25
EVALUATE LAYOUT OF FACILITIES	25
GATHER SYSTEMS ANALYSIS BACKGROUND INFORMATION BY REVIEW OF SYSTEMS DOCUMENTATION	25
PLAN FOR EQUIPMENT INSTALLATION	25
REPORT SYSTEM IMPLEMENTATION STATUS OF NEW SYSTEMS TO OTHER AGENCIES	25

REPRESENTATIVE TASKS PERFORMED BY MANAGEMENT PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
COUNSEL PERSONNEL ON PERSONAL OR MILITARY MATTERS	87
INSPECT PERSONNEL FOR MILITARY APPEARANCE	87
SCHEDULE LEAVE OR LIBERTY	76
MAKE WORK ASSIGNMENTS	75
CONDUCT OR PARTICIPATE IN STAFF MEETINGS	74
RESPOND TO INQUIRIES FROM CUSTOMERS	73
DRAFT CORRESPONDENCE, SUCH AS LETTERS, MESSAGES, OR DISPOSITION FORMS (DF)	73
INSPECT ADP FACILITIES FOR CLEANLINESS OR STATE OF REPAIR	70
DIRECT OR IMPLEMENT OJT PROGRAMS	70
SPONSOR INCOMING PERSONNEL	69
DRAFT OR WRITE AWARD RECOMMENDATIONS FOR SUBORDINATES	68
INSPECT ADP WORK AREAS OR PERSONNEL FOR UNSAFE WORKING CONDITIONS	68
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	66
REVIEW SOP	66
ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	65
DEFINE TRAINING REQUIREMENTS	64
REVIEW SHIFT REPORTS	64
PREPARE OR UPDATE INDIVIDUAL TRAINING RECORDS	64
RESOLVE PRODUCTION PROBLEMS WITH CUSTOMERS	64
WRITE OR RECOMMEND ENLISTED PERFORMANCE EVALUATIONS OR PRO AND CON MARKS	62
CONDUCT ORIENTATION BRIEFINGS OF NEWLY-ASSIGNED PERSONNEL	61
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	61
DETERMINE CAUSE OF FAULTY OUTPUT PRODUCTS	61
DETERMINE DUTY ASSIGNMENTS FOR INCOMING PERSONNEL	59
EVALUATE ADHERENCE TO WORK SCHEDULES	58
REVIEW ENLISTED PERFORMANCE EVALUATIONS	58

REPRESENTATIVE TASKS PERFORMED BY TAPE/DISK LIBRARIANS

TASKS	PERCENT MEMBERS PERFORMING
FILE MAGNETIC MEDIA	100
INVENTORY MAGNETIC MEDIA	97
CLEAN OR INSPECT MAGNETIC MEDIA	94
PLACE LOAD-POINT OR END-OF-TAPE MARKERS ON MAGNETIC TAPE	94
PLACE SCRATCH TAPES IN COMPUTER ROOM	93
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	90
ISSUE OR RECEIVE MAGNETIC MEDIA FROM LIBRARY	88
ESTABLISH OR UPDATE MAGNETIC MEDIA HISTORY FILES	85
UPDATE SCRATCH TAPES OR DISK PACK INVENTORY LISTS	84
ESTABLISH OR UPDATE MAGNETIC MEDIA ACCOUNTABILITY RECORDS	80
MAINTAIN OFF-SITE OR REMOTE STORAGE BACKUP FILES	80
INITIALIZE NEW MAGNETIC MEDIA	80
DEGAUSS MAGNETIC MEDIA	78
SPLICE MAGNETIC TAPES OR LEADERS	78
PERFORM OPERATOR MAINTENANCE ON TAPE CLEANERS	78
COMPARE TAPE IDENTIFICATIONS AND TAPE FILE-CONTROLS FOR AGREEMENT	76
PUNCH CARDS	68
IDENTIFY OR ORDER TAPES NEEDED FROM OFF-SITE STORAGE	68
LABEL MAGNETIC MEDIA EXTERNALLY	66
PREPARE UNCLASSIFIED INPUT OR OUTPUT MEDIA FOR MAIL, DELIVERY, OR DISTRIBUTION	65
CERTIFY MAGNETIC MEDIA	64
MAKE ENTRIES IN DISK PACK OR TAPE CONTROL LOGS	63
PREPARE TAPE USAGE REPORTS	54
REVIEW ACCURACY OF TAPE OR DISK PACK LIBRARY LISTS WITH SUBSYSTEM PROCESSING INSTRUCTIONS	53
REVIEW TAPES FOR FILE CLASSIFICATION	53
RESPOND TO INQUIRIES FROM CUSTOMERS	50

REPRESENTATIVE TASKS PERFORMED BY COMPUTER OPERATIONS PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
CHANGE OR ALIGN PAPER IN PRINTERS	94
CORRECT STOPPAGES ON PRINTERS	91
NOTIFY SUPERVISORS OR MANAGEMENT OF MACHINE FAILURE, DOWNTIME, OR PROCESSING PROBLEMS	89
CORRECT STOPPAGES ON CARD READERS	87
POWER UP OR POWER DOWN PERIPHERAL EQUIPMENT	86
REPLACE PRINT RIBBONS IN DATA PROCESSING EQUIPMENT	85
CORRECT STOPPAGES ON MAGNETIC TAPE DRIVES	84
PERFORM RESTART PROCEDURES ON COMPUTER SYSTEM	84
REMOVE PRINTED DATA OUTPUT	83
NOTIFY CUSTOMER ENGINEERS (CE) OR TECHNICAL REPRESENTATIVES OF EQUIPMENT FAILURE	82
CORRECT STOPPAGES ON CARD PUNCH MACHINES	82
PERFORM SYSTEM INITIALIZATION PROCEDURES	80
MOUNT OR DISMOUNT MAGNETIC OR PAPER TAPES	80
ADDRESS OR CALL SYSTEM VIA CONSOLE ACTION TO RESPOND TO SYSTEM REQUESTS	78
LOAD OR UNLOAD PUNCH CARDS IN OR FROM AUTOMATIC DATA PROCESSING (ADP) EQUIPMENT	77
LOAD PROGRAMS OR DATA FROM CARDS	77
LOAD PROGRAMS OR DATA FROM TAPES	76
POWER UP OR POWER DOWN CPU	76
ADDRESS OR CALL SYSTEM VIA CONSOLE TO REQUEST INFORMATION	75
LABEL MAGNETIC MEDIA EXTERNALLY	75
RESPOND TO OR CORRECT ERRORS VIA CONSOLE OPERATION	75
REVIEW CONSOLE OUTPUT FOR JOB STATUS	74
PUNCH CARDS	74
SET OR RESET COMPUTER TIME CLOCKS	72
INITIATE BATCHED JOB PROCESSING	72
PERFORM OPERATOR MAINTENANCE ON ADP EQUIPMENT	69

REPRESENTATIVE TASKS PERFORMED BY COMPUTER SYSTEMS MONITORS

TASKS	PERCENT MEMBERS PERFORMING
NOTIFY CUSTOMERS OF PRODUCTION PROBLEMS	94
RESPOND TO INQUIRIES FROM CUSTOMERS	94
RESOLVE PRODUCTION PROBLEMS WITH CUSTOMERS	93
NOTIFY CUSTOMERS OF JOB COMPLETION	91
PREPARE JOB OR RUN SHEETS	87
REPORT COMPUTER INPUT DATA CONTENT ERRORS TO CUSTOMERS	83
DETERMINE CAUSE OF FAULTY OUTPUT PRODUCTS	83
PUNCH CARDS	80
COORDINATE WITH OFFICES OF PRIMARY RESPONSIBILITY (OPR) ON NEW OR REVISED REPORTING REQUIREMENTS	76
DISTRIBUTE OR DELIVER OUTPUT PRODUCTS	74
BURST, DECOLLATE, OR ASSEMBLE PRINTED OUTPUT	67
INTERPRET CARDS BY MACHINE	64
EXPLAIN ERROR PRINTOUTS TO CUSTOMERS	62
ASSEMBLE, REARRANGE, OR EDIT INPUT OR OUTPUT DATA	59
NOTIFY PROGRAMMERS OR ANALYSTS OF PROCESSING PROBLEMS	59
CONVERT OR RECORD DATA FROM ONE MEDIA TO ANOTHER MEDIA, SUCH AS CARD TO TAPE OR TAPE TO DISK	59
PREPARE UNCLASSIFIED INPUT OR OUTPUT MEDIA FOR MAIL, DELIVERY, OR DISTRIBUTION	58
INTERPRET OR VERIFY CARDS VISUALLY	58
BATCH RUN REQUESTS	58
REPRODUCE CARDS	57
PICK UP FROM OR DELIVER DATA TO COMMUNICATIONS CENTER	56
ESTABLISH OR UPDATE INPUT OR OUTPUT (I/O) LOGS	54
IDENTIFY OR ORDER TAPES NEEDED FROM OFF-SITE STORAGE	52
DETERMINE ALTERNATE METHODS FOR ACCOMPLISHING JOB REQUIREMENTS	51
CHECK IN OR CHECK OUT MAGNETIC MEDIA FROM LIBRARY	50
COMPARE TAPE IDENTIFICATIONS AND TAPE FILE-CONTROLS FOR AGREEMENT	49

APPENDIX C

COMPUTER OPERATIONS SUPERVISOR

*1. SPECIALTY SUMMARY

Supervises, plans, and coordinates operations of computer systems equipment and punched card accounting machines (PCAM) and activities relating to production control and equipment management.

*2. DUTIES AND RESPONSIBILITIES

a. Plans and schedules computer operations activities. Plans and schedules input, output, and equipment operations of data processing systems to provide accurate and timely data to using activities. Establishes work performance standards, subsection responsibilities, and workflow between sections. Analyzes records and reports of production, operating time, and downtime of data processing equipment to determine operation effectiveness. Prepares recommendations for equipment acquisition or replacement. Prepares data processing cost reports or estimates. Insures availability of necessary supplies for effective operation. Maintains liaison with using activities to achieve efficient data processing equipment utilization. Improves work methods and procedures to insure full use of information.

b. Supervises computer operations personnel. Schedules personnel workloads and shift and duty assignments. Establishes work priorities. Supervises maintenance of utilization records of data processing equipment. Reviews completed data reports and programs for accuracy, adequacy, and compliance with instructions. Observes equipment operations to insure conformance with established standards. Rates personnel for performance. Counsels personnel on personal or military related problems. Interprets policies, directives, or procedures for subordinates; schedules leaves or passes and briefs newly assigned personnel. Establishes and conducts on-the-job training (OJT) for computer operations personnel; instructs and orients subordinates in local and standardized procedures.

c. Evaluates and assists computer operations activities. Makes periodic evaluation and assistance visits; notes discrepancies and recommends corrective action. Rates effectiveness of data processing program to include such areas as manpower, personnel, and training. Conducts computer performance evaluation/management, including the review of ADPE maintenance records and daily utilization logs and evaluation of the performance history of equipment.

d. Performs production control functions. Processes schedules, coordinates new or revised reporting requirements, and advises of input data errors with OPRs. Schedules due in or out machine workloads. Establishes daily program run priorities. Performs assembly, rearrangement, or spot edits of input data. Evaluates requirements for output products. Supervises production control tasks. Establishes and conducts on-the-job training (OJT) for production control personnel.

e. Performs technical computer operations functions. Performs start up operations; performs power on or power off procedures; selects and mounts tapes, disk packs or carriage control tapes; loads programs. Operates consoles; isolates causes of machine stops or malfunctions. Operates other data processing equipment, such as card punches, readers, interpreters, sorters, and decollators. Performs shift turnover procedures. Assists in troubleshooting problems occurring on production runs. Degausses and cleans tapes; locates tapes or disk packs in storage media or library. Establishes daily program run priorities; informs OPR of input data errors. Insures that output is timely, accurate, and conforms to established procedures. Changes paper in printers. Completes machine utilization records. Monitors temperature and humidity of computer facilities. Performs computer operator equipment maintenance on automatic data processing equipment (ADPE) and punched card accounting machines (PCAM). Inspects equipment, supplies, and work areas; coordinates repair of ADPE with maintenance personnel. (Suggested additions to further clarify technical duties of the supervisor.)